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This index covers all technical items—papers, correspondence, reviews, etc.—that appeared in this periodical during 2020, and items from previous years that were commented upon or corrected in 2020. Departments and other items may also be covered if they have been judged to have archival value.

The Author Index contains the primary entry for each item, listed under the first author's name. The primary entry includes the coauthors' names, the title of the paper or other item, and its location, specified by the publication abbreviation, year, month, and inclusive pagination. The Subject Index contains entries describing the item under all appropriate subject headings, plus the first author's name, the publication abbreviation, month, and year, and inclusive pages. Note that the item title is found only under the primary entry in the Author Index.

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- Analysis of DC, Channel Temperature, and RF Performance of *In Situ* SiN/AlGaIn-Sandwich-Barrier/GaN/Al_{0.05}GaN HEMTs. *Yang, L.*, +, *TED Oct. 2020* 4147-4151
- Analysis of Gate-Metal Resistance in CMOS-Compatible RF GaN HEMTs. *ElKashlan, R.Y.*, +, *TED Nov. 2020* 4592-4596
- Analysis of High-Temperature Carrier Transport Mechanisms for High Al-Content Al_{0.6}Ga_{0.4}N MSM Photodetectors. *Gu, Y.*, +, *TED Jan. 2020* 160-165
- Analysis of MIS-HEMT Device Edge Behavior for GaN Technology Using New Differential Method. *Kammeugne, R.K.*, +, *TED Nov. 2020* 4649-4653
- Analysis of Surface Charge Effects and Edge Fringing Capacitance in Planar GaAs and GaN Schottky Barrier Diodes. *Orfao, B.*, +, *TED Sept. 2020* 3530-3535
- Analytical Model Developed for Precise Stress Estimation of Device Channel Within Advanced Planar MOSFET Architectures. *Lee, C.*, +, *TED April 2020* 1498-1505
- Assessing the Performance of Novel Two-Dimensional Materials Transistors: First-Principles Based Approach. *Kim, B.*, +, *TED Feb. 2020* 463-468
- Augmentation and Assessment of a Universal FET *I* – *V* Model for Simulating GaN HEMTs. *Dasari, P.*, +, *TED March 2020* 847-854
- Band Variations Caused by Strain Effects for Quantum Wires With Arbitrary Orientations. *Cihak, H.L.*, +, *TED Jan. 2020* 270-276
- Bias-Dependent Electron Velocity Extracted From N-Polar GaN Deep Recess HEMTs. *Romanczyk, B.*, +, *TED April 2020* 1542-1546
- Charge Transport in Vertical GaN Schottky Barrier Diodes: A Refined Physical Model for Conductive Dislocations. *Chen, L.*, +, *TED March 2020* 841-846
- Charge-Based Compact Drain Current Modeling of InAs-OI-Si MOSFET Including Subband Energies and Band Nonparabolicity. *Maity, S.K.*, +, *TED June 2020* 2282-2289
- Charge-Based Compact Model of Gate Leakage Current for AlInN/GaN and AlGaIn/GaN HEMTs. *Debnath, A.*, +, *TED March 2020* 834-840
- Comparison of Dark Current Random Telegraph Signals in Silicon and InSb-Based Photodetector Pixel Arrays. *Durnez, C.*, +, *TED Nov. 2020* 4940-4946
- Consistent Surface-Potential-Based Modeling of Drain and Gate Currents in AlGaIn/GaN HEMTs. *Albahrani, S.A.*, +, *TED Feb. 2020* 455-462

- Correlation Between Anode Area and Sensitivity for the TiN/GaN Schottky Barrier Diode Temperature Sensor. *Li, X.*, +, *TED March 2020 1171-1175*
- Current Spreading in Back-Contacted GaInP/GaAs Light-Emitting Diodes. *Myllynen, A.*, +, *TED March 2020 1027-1033*
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- Degradation Behavior and Mechanisms of E-Mode GaN HEMTs With p-GaN Gate Under Reverse Electrostatic Discharge Stress. *Chen, Y.Q.*, +, *TED Feb. 2020 566-570*
- Design and Fabrication of Vertical GaN p-n Diode With Step-Etched Triple-Zone Junction Termination Extension. *Lee, H.*, +, *TED Sept. 2020 3553-3557*
- Design and Optimization of VCSELs for up to 40-Gb/s Error-Free Transmission Through Impurity-Induced Disorder. *Peng, C.*, +, *TED March 2020 1041-1046*
- Design Guidelines and Performance Tradeoffs in Recessed AlGaIn/GaN Schottky Barrier Diodes. *Soni, A.*, +, *TED Nov. 2020 4834-4841*
- Design of a β -Ga₂O₃ Schottky Barrier Diode With p-Type III-Nitride Guard Ring for Enhanced Breakdown. *Roy, S.*, +, *TED Nov. 2020 4842-4848*
- Design of GaN/AlGaIn/GaN Super-Heterojunction Schottky Diode. *Han, S.*, +, *TED Jan. 2020 69-74*
- Design of On-Wafer TRL Calibration Kit for InP Technologies Characterization up to 500 GHz. *Deng, M.*, +, *TED Dec. 2020 5441-5447*
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- Designing Beveled Edge Termination in GaN Vertical p-i-n Diode-Bevel Angle, Doping, and Passivation. *Zeng, K.*, +, *TED June 2020 2457-2462*
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- Diameter Scaling of Vertical Ge Gate- All-Around Nanowire pMOSFETs. *Liu, M.*, +, *TED July 2020 2988-2994*
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- Edge Termination for III-Nitride Vertical Power Devices Using Polarization Engineering. *Peart, M.R.*, +, *TED Feb. 2020 571-575*
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- Effect of Seed Layer on Gate-All-Around Poly-Si Nanowire Negative-Capacitance FETs With MFMIS and MFIS Structures: Planar Capacitors to 3-D FETs. *Lee, S.*, +, *TED Feb. 2020 711-716*
- Effect of Uniaxial Tensile Strains at Different Orientations on the Characteristics of AlGaIn/GaN High-Electron-Mobility Transistors. *Wang, C.*, +, *TED Feb. 2020 449-454*
- Effects of Contact Potential and Sidewall Surface Plane on the Performance of GaN Vertical Nanowire MOSFETs for Low-Voltage Operation. *Son, D.*, +, *TED April 2020 1547-1552*
- Effects of Interface Traps and Self-Heating on the Performance of GAA GaN Vertical Nanowire MOSFET. *Thingujam, T.*, +, *TED March 2020 816-821*
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- Efficient Carrier Transport for AlGaIn-Based Deep-UV LEDs With Graded Superlattice p-AlGaIn. *Mondal, R.K.*, +, *TED April 2020 1674-1679*
- Electric-Based Thermal Characterization of GaN Technologies Affected by Trapping Effects. *Bremer, J.*, +, *TED May 2020 1952-1958*
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- Enhanced Heat Dissipation of Phosphor Film in WLEDs by AlN-Coated Sapphire Plate. *Zheng, Z.*, +, *TED Aug. 2020 3180-3185*
- Enhanced Performance of HgCdTe Long-Wavelength Infrared Photodetectors With nBn Design. *He, J.*, +, *TED May 2020 2001-2007*
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- Enhancement of Hot Spot Cooling by Capped Diamond Layer Deposition for Multifinger AlGaIn/GaN HEMTs. *Zhang, H.*, +, *TED Jan. 2020 47-52*
- Evaluation of High-Temperature High-Frequency GaN-Based LC-Oscillator Components. *Ottaviani, A.*, +, *TED Nov. 2020 4587-4591*
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- Experimental Details of a Steep-Slope Ferroelectric InGaAs Tunnel-FET With High-Quality PZT and Modeling Insights in the Transient Polarization. *Verhulst, A.S.*, +, *TED Jan. 2020 377-382*
- Experimental Study on the Short-Circuit Instability of Cascode GaN HEMTs. *Xue, P.*, +, *TED April 2020 1686-1692*
- Extended-Source Double-Gate Tunnel FET With Improved DC and Analog/RF Performance. *Joshi, T.*, +, *TED April 2020 1873-1879*
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- Fabrication and Performance of Ti/Al/Ni/TiN Au-Free Ohmic Contacts for Undoped AlGaIn/GaN HEMT. *Li, X.*, +, *TED May 2020 1959-1964*
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- Gate-Length Dependence of Vertical GaSb Nanowire p-MOSFETs on Si. *Jonsson, A.*, +, *TED Oct. 2020 4118-4122*
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- Geometric Modeling of Thermal Resistance in GaN HEMTs on Silicon. *Gonzalez, B.*, +, *TED Dec. 2020 5408-5414*
- Hetero-Interfacial Thermal Resistance Effects on Device Performance of Stacked Gate-All-Around Nanosheet FET. *Venkateswarlu, S.*, +, *TED Oct. 2020 4493-4499*
- High Output Power GaN-Based Green Resonant-Cavity Light-Emitting Diodes With Trapezoidal Quantum Wells. *Wu, H.*, +, *TED Sept. 2020 3650-3654*
- High-Performance Normally-OFF AlGaIn/GaN Fin-MISHEMT on Silicon With Low Work Function Metal-Source Contact Ledge. *Huang, Y.*, +, *TED Dec. 2020 5434-5440*

- High-Performance Ultrathin-Barrier AlGaIn/GaN Hybrid Anode Diode With Al_2O_3 Gate Dielectric and *In Situ* Si_3N_4 -Cap Passivation. *Zhu, L.*, +, *TED Oct. 2020 4136-4140*
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- Hole-Induced Degradation in E-Mode GaN MIS-FETs: Impact of Substrate Terminations. *Hua, M.*, +, *TED Jan. 2020 217-223*
- Hot-Electron Effects in AlGaIn/GaN HEMTs Under Semi-ON DC Stress. *Minetto, A.*, +, *TED Nov. 2020 4602-4605*
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- Impact of AlGaIn/GaN Interface and Passivation on the Robustness of Low-Noise Amplifiers. *Huang, T.*, +, *TED June 2020 2297-2303*
- Impact of AlInN Back-Barrier Over AlGaIn/GaN MOS-HEMT With HfO_2 Dielectric Using Cubic Spline Interpolation Technique. *Sandeep, V.*, +, *TED Sept. 2020 3558-3563*
- Impact of Film Stress of Field-Plate Dielectric on Electric Characteristics of GaN-HEMTs. *Ando, Y.*, +, *TED Dec. 2020 5421-5426*
- Impact of Relative Gate Position on DC and RF Characteristics of High Performance AlGaIn/GaN HEMTs. *Yadav, Y.K.*, +, *TED Oct. 2020 4141-4146*
- Impact of Residual Carbon on Avalanche Voltage and Stability of Polarization-Induced Vertical GaN p-n Junction. *Fabris, E.*, +, *TED Oct. 2020 3978-3982*
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- Improvement of Electron Transport Property and on-Resistance in Normally-OFF $\text{Al}_2\text{O}_3/\text{AlGaIn/GaN}$ MOS-HEMTs Using Post-Etch Surface Treatment. *Zhu, J.*, +, *TED Sept. 2020 3541-3547*
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- Improving the Efficiency of GaInP/GaAs Light Emitters Using Surface Passivation. *Tripathi, T.S.*, +, *TED Sept. 2020 3667-3672*
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- Insight into Buffer Trap-Induced Current Saturation and Current Collapse in GaN RF Heterojunction Field-Effect Transistors. *Tripathi, D.C.*, +, *TED Dec. 2020 5460-5465*
- Integration, BEOL, and Thermal Stress Impact on CMOS-Compatible Titanium-Based Contacts for III-V Devices on a 300-mm Platform. *Boyer, F.*, +, *TED June 2020 2495-2502*
- Introduction of Graphene to Decrease Barrier Height and Improve Contact Characteristics of Metal/Si-GaAs Interface. *Liu, K.*, +, *TED Oct. 2020 4105-4111*
- Investigation of Defect Characteristics and Carrier Transport Mechanisms in GaN Layers With Different Carbon Doping Concentration. *Wang, H.*, +, *TED Nov. 2020 4827-4833*
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- Investigation of Switching Time in GaN/AlN Resonant Tunneling Diodes by Experiments and P-SPICE Models. *Zhang, W.*, +, *TED Jan. 2020 75-79*
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- Numerical Study of Carrier Transport in $n\text{-}/n\text{-GaAs}/\text{AlGaAs}$ Heterostructure at High Current Densities. *Soboleva, O.S.*, +, *TED Feb. 2020 438-443*
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- Optimization of Ohmic Contact for AlGaIn/GaN HEMT on Low-Resistivity Silicon. *Benakaprasad, B.*, +, *TED March 2020 863-868*
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- Computing-in-Memory Architecture Using Energy-Efficient Multilevel Voltage-Controlled Spin-Orbit Torque Device. *Shreya, S.*, +, *TED May 2020 1972-1979*
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- Macromodel for AC and Transient Simulations of Organic Thin-Film Transistor Circuits Including Nonquasistatic Effects. *Leise, J.*, +, *TED Nov. 2020 4672-4676*
- Mg_{0.35}Zn_{0.65}O/Al/ZnO Photodetectors With Capability of Identifying Ultraviolet-A/Ultraviolet-B. *Liu, H.*, +, *TED July 2020 2812-2818*
- Modeling the Key Material Properties of Germanium for Device Simulation in Cryogenic Environments. *Bradley, L.J.*, +, *TED Oct. 2020 4099-4104*
- Near-Interface Trap Model for the Low Temperature Conductance Signal in SiC MOS Capacitors With Nitrided Gate Oxides. *Nicholls, J.R.*, +, *TED Sept. 2020 3722-3728*
- Numerical Study of Carrier Transport in n_i/n₊GaAs/AlGaAs Heterostructure at High Current Densities. *Soboleva, O.S.*, +, *TED Feb. 2020 438-443*
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- Study of a Palladium (Pd)/Aluminum-Doped Zinc Oxide (AZO) Hydrogen Sensor and the Kalman Algorithm for Internet-of-Things (IoT) Application. *Chen, W.*, +, *TED Oct. 2020 4405-4412*
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A Simple Method to Realize Millilens Array on Encapsulant Layer for Enhancing Light Efficiency of COB-LEDs. *Yu, X.*, +, *TED Sept. 2020 3655-3659*

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A High Gain Low-Noise Amplifier Based on ITO-Stabilized ZnO Thin-Film Transistors. *Fan, H.*, +, *TED Dec. 2020 5537-5543*

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J_{swof} 5.5 MA/cm² and RA of 5.2- $\Omega \cdot \mu\text{m}^2$ STT-MRAM Technology for LLC Application. *Sakhare, S.*, +, *TED Sept. 2020 3618-3625*

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- $J_{\text{SW}} 5.5 \text{ MA/cm}^2$ and RA of $5.2 \cdot \Omega \cdot \mu\text{m}^2$ STT-MRAM Technology for LLC Application. *Sakhare, S.*, +, *TED Sept. 2020 3618-3625*
- V_i Extraction Methodologies Influence Process Induced V_i Variability: Does This Fact Still Hold for Advanced Technology Nodes?. *Bhoir, M.S.*, +, *TED Nov. 2020 4691-4695*
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- $J_{\text{SW}} 5.5 \text{ MA/cm}^2$ and $\text{RA of } 5.2 \cdot \Omega \cdot \mu\text{m}^2$ STT-MRAM Technology for LLC Application. *Sakhare, S., +, TED Sept. 2020 3618-3625*
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- Ammonia Sensing Characteristics of a Platinum (Pt) Hybrid Structure/GaN-Based Schottky Diode. *Chang, C., +, TED Jan. 2020 296-303*

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- Suppression of the Higher-Order Azimuthal Mode Competition in an X-Band Triaxial Klystron Amplifier With a Slotted Coaxial Waveguide. *Zhang, J., +, TED March 2020 1215-1220*

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- Investigation of Barrier Property of Amorphous Co–Ti Layer as Single Barrier/Liner in Local Co Interconnects. *Zhang, D., +, TED May 2020 2076-2081*

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- Synthesis of Silica-Coated Cs_4PbBr_6 and $\text{Cs}_4\text{Pb}(\text{Br}_{0.4}\text{I}_{0.6})_6$ Quantum Dots With Long Lifetime and Enhancement in Quantum Efficiency for WLEDs Applications: Lightings With High CRI and Displays With Wide Color Gamut. *Lin, Y., +, TED June 2020 2386-2392*

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- In-Memory Digital Comparator Based on a Single Multivalued One-Transistor-One-Resistor Memristor. *Cheng, L., +, TED March 2020 1293-1296*

Compensation

- A Low-Power CMOS Current Reference for Piezoelectric Energy Harvesters. *Carvalho, R., +, TED Aug. 2020 3403-3410*

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- Multiple-GPU-Based Simulation of Ka-Band Helix Traveling Wave Tube. *Wang, X., +, TED June 2020 2585-2592*

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- A Comprehensive Analysis of the 2-DEG Transport Properties in $\text{In}_x\text{Al}_{1-x}\text{N}/\text{AlN}/\text{GaN}$ Heterostructure: Experiments and Numerical Simulations. *Qin, J., +, TED Dec. 2020 5427-5433*
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- Contact angle**
- Characterizations of Electrolyte–Insulator–Semiconductor Sensors With Array Wells and a Stack-Sensing Membrane. *Chen, H.J.H.*, +, *TED Sept. 2020 3761-3766*
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- Contact potential**
- Effects of Contact Potential and Sidewall Surface Plane on the Performance of GaN Vertical Nanowire MOSFETs for Low-Voltage Operation. *Son, D.*, +, *TED April 2020 1547-1552*
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- A Ladder Transmission Line Model for the Extraction of Ultralow Specific Contact Resistivity—Part II: Experimental Verification. *Xu, H.*, +, *TED July 2020 2690-2696*
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- Introduction of Graphene to Decrease Barrier Height and Improve Contact Characteristics of Metal/Si-GaAs Interface. *Liu, K.*, +, *TED Oct. 2020 4105-4111*
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- On the Accuracy of the Cox–Strack Equation and Method for Contact Resistivity Determination. *van Rijnbach, M.*, +, *TED April 2020 1757-1763*
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- Refractory W Ohmic Contacts to H-Terminated Diamond. *Vardi, A.*, +, *TED Sept. 2020 3516-3521*
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- Thermoelectric Property Requirements for On-Chip Cooling of Device Transients. *Nimmagadda, L.A.*, +, *TED Sept. 2020 3716-3721*
- Content-addressable storage**
- FeCAM: A Universal Compact Digital and Analog Content Addressable Memory Using Ferroelectric. *Yin, X.*, +, *TED July 2020 2785-2792*
- Convolutional neural nets**
- Efficient and Robust Spike-Driven Deep Convolutional Neural Networks Based on NOR Flash Computing Array. *Xiang, Y.*, +, *TED June 2020 2329-2335*
- Investigation of Read Disturb and Bipolar Read Scheme on Multilevel RRAM-Based Deep Learning Inference Engine. *Shim, W.*, +, *TED June 2020 2318-2323*
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- Cooling**
- Accurate Temperature Estimation for Each Gate of GaN HEMT With n-Gate Fingers. *Al-Saman, A.A.*, +, *TED Sept. 2020 3577-3584*
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- Enhancement of Hot Spot Cooling by Capped Diamond Layer Deposition for Multifinger AlGaIn/GaN HEMTs. *Zhang, H.*, +, *TED Jan. 2020 47-52*
- Heat Dissipation Enhancement of Phosphor-Converted White Laser Diodes by Thermally Self-Managing Phosphor-in-Glass. *Peng, Y.*, +, *TED Oct. 2020 4288-4292*
- High-Average-Power Second Harmonic W-Band Gyrotron With Room-Temperature Solenoid. *Pilosoff, M.*, +, *TED April 2020 1804-1807*
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- Suppression of Surface Leakage Currents in InAs Avalanche Photodiodes via Sputtering of High- k Dielectric Layers. *Cao, Z.*, +, *TED Oct. 2020 4269-4273*
- Copper**
- Effect of Thermal Management on the Performance of VCSELs. *Pan, P.*, +, *TED Sept. 2020 3736-3739*
- Copper compounds**
- Amorphous p-Type CuNiSnO Thin-Film Transistors Processed at Low Temperatures. *Cheng, X.*, +, *TED June 2020 2336-2341*

- Annealing Effect on the Performance of Copper Oxide Resistive Memory Devices. *Hsu, C.*, +, *TED March 2020 976-983*
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- Efficient Resistive Switching and Spike Rate Dependent Plasticity in a New CuCrO₂ Memristor for Plausible Neuromorphic Systems. *Boppidi, P.K.R.*, +, *TED Aug. 2020 3451-3458*
- Elucidation of Inhomogeneous Heterojunction Performance of Al/Cu₃FeS₄ Schottky Diode With a Gaussian Distribution of Barrier Heights. *Sil, S.*, +, *TED May 2020 2082-2087*
- Hybrid 2D-0D SnS₂ Nanoflakes/CTS QDs-Based Broadband (UV-Visible-NIR) Photodetector. *Yadav, S.M.*, +, *TED May 2020 2008-2015*
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- Copy protection**
- Flash Watermark: An Anticounterfeiting Technique for NAND Flash Memories. *Sakib, S.*, +, *TED Oct. 2020 4172-4177*
- Lightweight Integrated Design of PUF and TRNG Security Primitives Based on eFlash Memory in 55-nm CMOS. *Larimian, S.*, +, *TED April 2020 1586-1592*
- Correlation methods**
- Correlation Between Anode Area and Sensitivity for the TiN/GaN Schottky Barrier Diode Temperature Sensor. *Li, X.*, +, *TED March 2020 1171-1175*
- Corrosion**
- A Lifetime Performance Analysis of LED Luminaires Under Real-Operation Profiles. *Padmasali, A.N.*, +, *TED Jan. 2020 146-153*
- Coupled circuits**
- Antiferroelectric Tunnel Junctions as Energy-Efficient Coupled Oscillators: Modeling, Analysis, and Application to Solving Combinatorial Optimization Problems. *Andrews, R.*, +, *TED July 2020 2974-2980*
- Covariance matrices**
- Time Complexity of In-Memory Solution of Linear Systems. *Sun, Z.*, +, *TED July 2020 2945-2951*
- Cryogenic electronics**
- A High-Gain CMOS Operational Amplifier Using Low-Temperature Poly-Si Oxide TFTs. *Rahaman, A.*, +, *TED Feb. 2020 524-528*
- Cryogenic Operation of Thin-Film FDSOI nMOS Transistors: The Effect of Back Bias on Drain Current and Transconductance. *Casse, M.*, +, *TED Nov. 2020 4636-4640*
- Low-Noise Si-JFETs Enhanced by Split-Channel Concept. *Sturm-Rogon, L.*, +, *TED Nov. 2020 4789-4793*
- Modeling the Key Material Properties of Germanium for Device Simulation in Cryogenic Environments. *Bradley, L.J.*, +, *TED Oct. 2020 4099-4104*
- Performance and Low-Frequency Noise of 22-nm FDSOI Down to 4.2 K for Cryogenic Applications. *Cardoso Paz, B.*, +, *TED Nov. 2020 4563-4567*
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- Inflection Phenomenon in Cryogenic MOSFET Behavior. *Beckers, A.*, +, *TED March 2020 1357-1360*
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- Lightweight Integrated Design of PUF and TRNG Security Primitives Based on eFlash Memory in 55-nm CMOS. *Larimian, S.*, +, *TED April 2020 1586-1592*
- Thermal Brownian Motion of Skyrmion for True Random Number Generation. *Yao, Y.*, +, *TED June 2020 2553-2558*
- Crystal defects**
- Characterization of Schottky Barrier Diodes on Heteroepitaxial Diamond on 3C-SiC/Si Substrates. *Murooka, T.*, +, *TED Jan. 2020 212-216*
- In Situ Observation of β -Ga₂O₃ Schottky Diode Failure Under Forward Biasing Condition. *Islam, Z.*, +, *TED Aug. 2020 3056-3061*
- Crystal growth from solution**
- UV Illumination and Au Nanoparticles Enhanced ZnO Nanorods Field Electron Emission Device. *Young, S.*, +, *TED Jan. 2020 304-308*
- Crystal microstructure**
- Effect of Different Metallic Contacts on the Device Performance of a p-n Heterostructure of a Topological Insulator and Silicon (p-Bi₂Te₃/n-Si). *Ahmad, F.*, +, *TED Dec. 2020 5388-5395*
- Influence of the Surface Tungsten Distribution on the Emission Properties of Barium Tungsten Cathode. *Shang, J.*, +, *TED June 2020 2580-2584*
- Performance Modulation in All-Solution-Driven InCaO_x/HfGdO_x Thin-Film Transistors and Exploration in Low-Voltage-Operated Logic Circuits. *Zhang, C.*, +, *TED Oct. 2020 4238-4244*
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- Kinetic Monte Carlo Simulation of Interface-Controlled Hafnia-Based Resistive Memory. *Xu, X.*, +, *TED Jan. 2020 118-124*
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- Design Considerations for Si- and Ge-Stacked Nanosheet pMOSFETs Based on Quantum Transport Simulations. *Zhang, S.*, +, *TED Jan. 2020 26-32*
- Crystal structure**
- Amorphous ITZO Thin-Film Transistors by Using Ultrasonic Spray Pyrolysis Deposition. *Liu, H.*, +, *TED March 2020 1009-1013*
- Insertion of HfO₂ Seed/Dielectric Layer to the Ferroelectric HZO Films for Heightened Remanent Polarization in MFM Capacitors. *Gaddam, V.*, +, *TED Feb. 2020 745-750*
- Mg_{0.35}Zn_{0.65}O/Al/ZnO Photodetectors With Capability of Identifying Ultraviolet-A/Ultraviolet-B. *Liu, H.*, +, *TED July 2020 2812-2818*
- Crystallization**
- A Compact Phase Change Memory Model With Dynamic State Variables. *Hu, H.*, +, *TED Jan. 2020 133-139*
- Au/As₂Se₃/Ag/As₂Se₃/Yb Schottky Barriers Designed as Multifunctional Devices. *Al Harbi, S.R.*, +, *TED March 2020 1305-1309*
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- Curing of Aged Gate Dielectric by the Self-Heating Effect in MOSFETs. *Park, J.*, +, *TED March 2020 777-788*
- Nanocomposite Material Characterization of a Solid-State Fractional Capacitor. *John, D.A.*, +, *TED March 2020 1136-1142*
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- A High-Current-Density Terahertz Electron-Optical System Based on Carbon Nanotube Cold Cathode. *Gu, Y.*, +, *TED Dec. 2020 5760-5765*
- A Novel 3.3-kV Integrated ETO (IETO) With Single-Gate Controlling. *Chen, R.*, +, *TED May 2020 2052-2057*
- A Novel Chevron-Shape Double-Staggered Grating Waveguide Slow Wave Structure for Terahertz Traveling Wave Tubes. *Babaeihaseghobi, A.*, +, *TED Sept. 2020 3781-3787*
- An ON-Resistance Model for Silicon Carbide Merged p-i-n Schottky (MPS) Diodes. *Du, Q.*, +, *TED Oct. 2020 4033-4039*
- Application of 2DHG Diamond p-FET in Cascode With Normally-OFF Operation and a Breakdown Voltage of Over 1.7 kV. *Bi, T.*, +, *TED Oct. 2020 4006-4009*
- Batch-Fabricated WSe₂-on-Sapphire Field-Effect Transistors Grown by Chemical Vapor Deposition. *Asghari Heidarlou, M.*, +, *TED April 2020 1839-1844*
- Corrections to "Opportunities in Device Scaling for 3-nm Node and Beyond: FinFET Versus GAA-FET Versus UFET". *Das, U.K.*, +, *TED Aug. 2020 3496*
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- Deep Gate Field Penetration Au:ZrO₂ Metal-Insulator Tunneling Transistor. *McDermott, A.J.*, +, *TED June 2020 2627-2632*
- Design Space Analysis for Cross-Point 1S1MTJ MRAM: Selector-MTJ Cooptimization. *Chiang, H.*, +, *TED Aug. 2020 3102-3108*
- Design, Performance, and Defect Density Analysis of Efficient Eco-Friendly Perovskite Solar Cell. *Shubham, .*, +, *TED July 2020 2837-2843*
- Direct-Bandgap Electroluminescence From Germanium With Subband Engineering Utilizing a Metal-Oxide-Semiconductor Structure. *Xie, M.*, +, *TED May 2020 2016-2021*
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Low-Current-Density Magnetic Tunnel Junctions for STT-RAM Application Using MgO_x N_{1-x} ($x = 0.57$) Tunnel Barrier. *Moinuddin, M.G.*, +, *TED Jan. 2020 125-132*

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Passivation of n- and p-Type Silicon Surfaces With Spray-Coated Sol-Gel Silicon Oxide Thin Film. *Bhajibale, J.*, +, *TED Nov. 2020 5045-5052*

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Chalcogen-Assisted Enhanced Atomic Orbital Interaction at TMD–Metal Interface and Sulfur Passivation for Overall Performance Boost of 2-D TMD FETs. *Ansh, .*, +, *TED Feb. 2020 717-724*

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- Research on an Overmoded Ka-Band RBWO Operating in TM₀₂ Mode With Low-Guiding Magnetic Field. *Wang, D.*, +, *TED Jan. 2020 314-321*
- RF Behavior of a Coaxial Interaction Structure for 0.24-THz, 2-MW Gyrotron. *Kumar, N.*, +, *TED Aug. 2020 3369-3377*
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- A Comprehensive Analysis of the 2-DEG Transport Properties in In_xAl_{1-x}N/AlN/GaN Heterostructure: Experiments and Numerical Simulations. *Qin, J.*, +, *TED Dec. 2020 5427-5433*
- Accumulation-Mode Device: New Power MOSFET Breaking Superjunction Silicon Limit by Simulation Study. *Duan, B.*, +, *TED March 2020 1085-1089*
- Analysis of Surface Charge Effects and Edge Fringing Capacitance in Planar GaAs and GaN Schottky Barrier Diodes. *Orfao, B.*, +, *TED Sept. 2020 3530-3535*
- Near-Interface Trap Model for the Low Temperature Conductance Signal in SiC MOS Capacitors With Nitrided Gate Oxides. *Nicholls, J.R.*, +, *TED Sept. 2020 3722-3728*
- Static and Transient Simulation of 4H-SiC VDMOS Using Full-Band Monte Carlo Simulation That Includes Real-Space Treatment of the Coulomb Interactions. *Cheng, C.*, +, *TED Sept. 2020 3705-3710*
- Ultrahigh-Speed Mid-Infrared Photodetectors With 2-D Electron Gas in a CdTe/PbTe Heterojunction. *Zhu, J.*, +, *TED June 2020 2432-2436*

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- A Low-Voltage, Premodulation Terahertz Oscillator Based on a Carbon Nanotube Cold Cathode. *Xu, X.*, +, *TED March 2020 1266-1269*
- A New Emission Mechanism for Island-Metal-Film-Based Electron Sources. *Zhan, F.*, +, *TED Nov. 2020 5119-5124*

- Nanofabricated Low-Voltage Gated Si Field-Ionization Arrays. *Rughoobur, G.*, +, *TED Aug. 2020 3378-3384*
- On-Chip Fully Integrated Field Emission Arrays for High-Voltage MEMS Applications. *Deka, N.*, +, *TED Sept. 2020 3753-3760*
- Si Nanowire With Integrated Space-Charge-Limited Conducted Schottky Junction for Enhancing Field Electron Emission and Its Gated Devices. *Zeng, M.*, +, *TED Oct. 2020 4467-4472*
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- UV Illumination and Au Nanoparticles Enhanced ZnO Nanorods Field Electron Emission Device. *Young, S.*, +, *TED Jan. 2020 304-308*

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- Demonstration of a High-Power Ka-Band Extended Interaction Klystron. *Zhao, D.*, +, *TED Sept. 2020 3788-3794*
- Electron Gun Thermal Depended Properties' Analysis of a High-Power W-Band Sheet Beam Extended Oscillator. *Rui, L.*, +, *TED Feb. 2020 684-689*
- Electron Injector Based on Thermionic RF-Modulated Electron Gun for Particle Accelerator Applications. *Zhang, L.*, +, *TED Jan. 2020 347-353*
- Magnetron Injection Gun for High-Power Gyroklystron. *Zhang, L.*, +, *TED Nov. 2020 5151-5157*
- Multitube Helical-Waveguide Gyrotron Traveling-Wave Amplifier: Device Concept and Electron-Optical System Modeling. *Samsonov, S.V.*, +, *TED Aug. 2020 3385-3390*
- Nonadiabatic Effects on Beam-Quality Parameters for Frequency-Tunable Gyrotrons. *Tsai, C.*, +, *TED Jan. 2020 341-346*
- Second Harmonic 527-GHz Gyrotron for DNP-NMR: Design and Experimental Results. *Jawla, S.K.*, +, *TED Jan. 2020 328-334*

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- A First Evaluation of Thick Oxide 3C-SiC MOS Capacitors Reliability. *Li, F.*, +, *TED Jan. 2020 237-242*

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- A Comprehensive Analysis of the 2-DEG Transport Properties in In_xAl_{1-x}N/AlN/GaN Heterostructure: Experiments and Numerical Simulations. *Qin, J.*, +, *TED Dec. 2020 5427-5433*
- A Computational and Numerical Studies of OLED Based on Ninhydrin-Glycine Schiff Base Complex. *Chouk, R.*, +, *TED Dec. 2020 5581-5586*
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- Charge-Based Compact Model of Gate Leakage Current for AlInN/GaN and AlGaIn/GaN HEMTs. *Debnath, A.*, +, *TED March 2020 834-840*
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- Low-Frequency Noise Assessment of Vertically Stacked Si n-Channel Nanosheet FETs With Different Metal Gates. *Oliveira, A.*, +, *TED Nov. 2020 4802-4807*

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A High-Current-Density Terahertz Electron-Optical System Based on Carbon Nanotube Cold Cathode. *Gu, Y.*, +, *TED Dec. 2020 5760-5765*

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A New Emission Mechanism for Island-Metal-Film-Based Electron Sources. *Zhan, F.*, +, *TED Nov. 2020 5119-5124*

PIC Simulation of Pseudospark Discharge-Based Plasma Cathode Electron Source for the Generation of High Current Density and Energetic Electron Beam. *Varun, .*, +, *TED April 2020 1793-1796*

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Wafer-Scale Fabricated On-Chip Thermionic Electron Sources With an Integrated Extraction Gate. *Wang, Y.*, +, *TED Nov. 2020 5132-5137*

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Double-Gate Junctionless 1T DRAM With Physical Barriers for Retention Improvement. *Ansari, M.H.R.*, +, *TED April 2020 1471-1479*

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- Comparison of Dark Current Random Telegraph Signals in Silicon and InSb-Based Photodetector Pixel Arrays. *Durnez, C.*, +, *TED Nov. 2020 4940-4946*
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- Design and Simulation of Steep-Slope Silicon Cold Source FETs With Effective Carrier Distribution Model. *Gan, W.*, +, *TED June 2020 2243-2248*
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- Effect of ELA Energy Density on Self-Heating Stress in Low-Temperature Polycrystalline Silicon Thin-Film Transistors. *Huang, S.*, +, *TED Aug. 2020 3163-3166*
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- Enhanced Ultraviolet Avalanche Photodiode With 640-nm-Thin Silicon Body Based on SOI Technology. *Alirezai, I.S.*, +, *TED Nov. 2020 4641-4644*
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- Hall Effect Measurements in Rotating Magnetic Field on Sub-30-nm Silicon Nanowires Fabricated by a Top-Down Approach. *Verma, A.*, +, *TED Nov. 2020 5201-5208*
- High-Performance Normally-OFF AlGaIn/GaN Fin-MISHEMT on Silicon With Low Work Function Metal-Source Contact Ledge. *Huang, Y.*, +, *TED Dec. 2020 5434-5440*
- Highly Sensitive Narrowband Si Photodetector With Peak Response at Around 1060 nm. *Wang, L.*, +, *TED Aug. 2020 3211-3214*
- Highly Sensitive p⁺Si/Al Thermopile-Based Gas Flow Sensors by Using Front-Sided Bulk Micromachining Technology. *Wang, S.*, +, *TED April 2020 1781-1786*
- How Can Si/Ge Core/Shell Nanowires Outperform Their Pure Material Counterparts?. *Lv, Y.*, +, *TED March 2020 1327-1333*
- Hybrid 2D-0D SnS₂ Nanoflakes/CTS QDs-Based Broadband (UV-Visible-NIR) Photodetector. *Yadav, S.M.*, +, *TED May 2020 2008-2015*
- Impact of Charges at Ferroelectric/Interlayer Interface on Depolarization Field of Ferroelectric FET With Metal/Ferroelectric/Interlayer/Si Gate-Stack. *Wang, X.*, +, *TED Oct. 2020 4500-4506*
- Impact of Dummy Gate Removal and a Silicon Cap on the Low-Frequency Noise Performance of Germanium nFinFETs. *Xie, D.*, +, *TED Nov. 2020 4713-4719*
- Impact of Mechanical Stress on 3-D NAND Flash Current Conduction. *Kruv, A.*, +, *TED Nov. 2020 4891-4896*
- Impact of N₂ Coimplant on Phosphorus Diffusion and Activation for n⁺/p Ge Junctions. *Dev, S.*, +, *TED Feb. 2020 419-423*
- Impact of Width Scaling and Parasitic Series Resistance on the Performance of Silicene Nanoribbon MOSFETs. *Poljak, M.*, *TED Nov. 2020 4705-4708*
- Impacts of Stress Voltage and Channel Length on Hot-Carrier Characteristics of Tunnel Field-Effect Thin-Film Transistor. *Ma, W.C.*, +, *TED Nov. 2020 5243-5246*
- Implementation and Characterization of an Integrate-and-Fire Neuron Circuit Using a Silicon Nanowire Feedback Field-Effect Transistor. *Woo, S.*, +, *TED July 2020 2995-3000*
- Improved Low-Voltage Sensing Performance in MIS(p) Tunnel Diodes by Oxide Thickening at the Gate Fringe. *Lin, K.*, +, *TED April 2020 1845-1851*
- Improved the *C-V* Curve Shift, Trap State Responsiveness, and Dynamic *R_{ON}* of SBDs by the Composite 2-D-3-D Channel Heterostructure Under the OFF-State Stress. *Yang, L.*, +, *TED Nov. 2020 4808-4812*
- Inadequacy of Third-Order Elastic Coefficients for Predicting Nonlinearity in Highly n-Type-Doped Silicon Resonators. *Khazaeili, B.*, +, *TED Feb. 2020 614-621*
- Influence of Different Surface Morphologies on the Performance of High-Voltage, Low-Resistance Diamond Schottky Diodes. *Reinke, P.*, +, *TED June 2020 2471-2477*
- Influence of Metal Gate Electrodes on Electrical Properties of Atomic-Layer-Deposited Al-Rich HfAlO/Ga₂O₃ MOSCAPs. *Zhang, H.*, +, *TED April 2020 1730-1736*
- Influence of Substrate Resistivity on Porous Silicon Small-Signal RF Properties. *Godet, G.*, +, *TED Nov. 2020 4654-4657*
- Integration, BEOL, and Thermal Stress Impact on CMOS-Compatible Titanium-Based Contacts for III-V Devices on a 300-mm Platform. *Boyer, F.*, +, *TED June 2020 2495-2502*
- Intrinsic Capabilities for Digital Switching of Silicene Nanoribbons With Edge Defects. *Poljak, M.*, *TED Jan. 2020 354-359*
- Introduction of Graphene to Decrease Barrier Height and Improve Contact Characteristics of Metal/Si-GaAs Interface. *Liu, K.*, +, *TED Oct. 2020 4105-4111*
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- Investigation of Electrical Characteristic Behavior Induced by Channel-Release Process in Stacked Nanosheet Gate-All-Around MOSFETs. *Kim, S.*, +, *TED June 2020 2648-2652*
- Investigation of Self-Heating Effects in Vacuum Gate Dielectric Gate-all-Around Vertically Stacked Silicon Nanowire Field Effect Transistors. *Su, Y.*, +, *TED Oct. 2020 4085-4091*
- Investigation of the Temperature Dependence of Hot-Carrier Degradation in Si MOSFETs Using Spectroscopic Charge Pumping. *Ruch, B.*, +, *TED Oct. 2020 4092-4098*
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- Low Contact Resistivity to Ge Using *In-Situ* B and Sn Incorporation by Chemical Vapor Deposition. *Tsai, C.*, +, *TED Nov. 2020 5053-5058*
- Low-Frequency Noise Assessment of Vertically Stacked Si n-Channel Nanosheet FETs With Different Metal Gates. *Oliveira, A.*, +, *TED Nov. 2020 4802-4807*
- Low-Frequency Noise Characteristics Under the OFF-State Stress. *Lee, G.*, +, *TED Oct. 2020 4366-4371*

- Low-Frequency Noise Characterization of Germanium n-Channel FinFETs. *de Oliveira, A.V.*, +, *TED July 2020 2872-2877*
- Low-Noise Si-JFETs Enhanced by Split-Channel Concept. *Sturm-Rogon, L.*, +, *TED Nov. 2020 4789-4793*
- Modeling Field Effect in Black Silicon and Its Impact on Device Performance. *Heinonen, J.*, +, *TED April 2020 1645-1652*
- Modeling of the Vertical Leakage Current in AlN/Si Heterojunctions for GaN Power Applications. *Borga, M.*, +, *TED Feb. 2020 595-599*
- Modeling the Key Material Properties of Germanium for Device Simulation in Cryogenic Environments. *Bradley, L.J.*, +, *TED Oct. 2020 4099-4104*
- Nanofabricated Low-Voltage Gated Si Field-Ionization Arrays. *Rughoobur, G.*, +, *TED Aug. 2020 3378-3384*
- Neuro-Inspired-in-Memory Computing Using Charge-Trapping MemTransistor on Germanium as Synaptic Device. *Chou, Y.*, +, *TED Sept. 2020 3605-3609*
- Non-Volatile Field-Effect Transistors Enabled by Oxygen Vacancy-Related Dipoles for Memory and Synapse Applications. *Peng, Y.*, +, *TED Sept. 2020 3632-3636*
- Numerical Simulation of Thermal Conductivity of SiNW-SiGe_{0.3} Composite for Thermoelectric Applications. *Lee, M.*, +, *TED May 2020 2088-2092*
- On Border Traps in Back-Side-Illuminated CMOS Image Sensor Oxides. *Vici, A.*, +, *TED May 2020 2022-2027*
- On the Stability of Amorphous Silicon Temperature Sensors. *Lovecchio, N.*, +, *TED Aug. 2020 3348-3354*
- On-Chip Fully Integrated Field Emission Arrays for High-Voltage MEMS Applications. *Deka, N.*, +, *TED Sept. 2020 3753-3760*
- Operation Characteristics of Gate-All-Around Junctionless Flash Memory Devices With Si₃N₄/ZrO-Based Stacked Trapping Layer. *Fang, H.*, +, *TED Sept. 2020 3626-3631*
- Optical Pixel Sensor Based on a-Si:H TFTs to Detect Combined Optical Signals for Multiuser Interactive Displays. *Lin, C.*, +, *TED June 2020 2425-2431*
- Optimization of Ohmic Contact for AlGaIn/GaN HEMT on Low-Resistivity Silicon. *Benakaprasad, B.*, +, *TED March 2020 863-868*
- Optimized Design of Carrier Injection Terminal for Reliable Low-Temperature Poly-Si TFTs Under Dynamic Hot-Carrier Stress. *Chen, L.*, +, *TED May 2020 1987-1992*
- Optimized Substrate for Improved Performance of Stacked Nanosheet Field-Effect Transistor. *Jegatheesan, V.*, +, *TED Oct. 2020 4079-4084*
- p-Diamond, Si, GaN, and InGaAs TeraFETs. *Zhang, Y.*, +, *TED Nov. 2020 4858-4865*
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- Performance Evaluation and Device Physics Investigation of Negative-Capacitance MOSFETs Based on Ultrathin Body Silicon and Monolayer MoS₂. *Luo, S.*, +, *TED Aug. 2020 3049-3055*
- Poly-Si Finlike Thin-Film Transistors With Various Wide Drain Designs for Radio Frequency and 3-D Integrated Circuits. *Hu, H.*, +, *TED June 2020 2342-2345*
- Process Variation Analysis of Device Performance Using Virtual Fabrication: Methodology Demonstrated on a CMOS 14-nm FinFET Vehicle. *Vincent, B.*, +, *TED Dec. 2020 5374-5380*
- Prospects for Wide Bandgap and Ultrawide Bandgap CMOS Devices. *Bader, S.J.*, +, *TED Oct. 2020 4010-4020*
- Quantitative Analysis of High-Pressure Deuterium Annealing Effects on Vertically Stacked Gate-All-Around SONOS Memory. *Yu, J.*, +, *TED Sept. 2020 3903-3907*
- Room Temperature Hydrogen Sensing Investigation of Zinc Oxide Schottky Thin-Film Transistors: Dependence on Film Thickness. *Ghosh, S.*, +, *TED Dec. 2020 5701-5709*
- Si Nanowire With Integrated Space-Charge- Limited Conducted Schottky Junction for Enhancing Field Electron Emission and Its Gated Devices. *Zeng, M.*, +, *TED Oct. 2020 4467-4472*
- Single Pulse Charge Pumping Measurements on GaN MOS-HEMTs: Fast and Reliable Extraction of Interface Traps Density. *Alghamdi, S.*, +, *TED Feb. 2020 444-448*
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- Study on Degradation Mechanisms of Thermal Conductivity for Confined Nanochannel in Gate-All-Around Silicon Nanowire Field-Effect Transistors. *Lai, J.*, +, *TED Oct. 2020 4060-4066*
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- Suppression of Edge Effect Induced by Positive Gate Bias Stress in Low-Temperature Polycrystalline Silicon TFTs With Channel Width Extension Over Source/Drain Regions. *Wang, Y.*, +, *TED Dec. 2020 5552-5556*
- Sustained Benefits of NCFETs Under Extreme Scaling to the End of the IRDS. *Cam, T.*, +, *TED Sept. 2020 3843-3851*
- TCAD Study of VLD Termination in Large-Area Power Devices Featuring a DLC Passivation. *Balestra, L.*, +, *TED Nov. 2020 4645-4648*
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- Theoretical Analysis of Ballistic Current Transport in Monolayer Black Arsenic MOSFETs. *Seo, J.E.*, +, *TED Feb. 2020 622-626*
- Thermoelectric Property Requirements for On-Chip Cooling of Device Transients. *Nimmagadda, L.A.*, +, *TED Sept. 2020 3716-3721*
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- Transport Mechanism of B/P Codoped Armchair Graphene Nanoribbons. *Liu, J.*, +, *TED May 2020 2120-2125*
- Variability Effects in Nanowire and Macaroni MOSFETs—Part I: Random Dopant Fluctuations. *Spinelli, A.S.*, +, *TED April 2020 1485-1491*
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- Ellipsometers**
- Deposition of c-Axis Aligned Crystalline InGaZnO by Mist Atmospheric Pressure Chemical Vapor Deposition for Thin-Film Transistor Applications. *Liu, H.*, +, *TED Oct. 2020 4245-4249*
- Ellipsometry**
- MgZnO-Based Schottky Barrier Ultraviolet-B Photodiode by Ultrasonic Spray Pyrolysis Deposition. *Liu, H.*, +, *TED Jan. 2020 173-178*
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Ring Remote Phosphor Structure for Laser-Driven White Lighting. *Chen, B.*, +, *TED June 2020 2400-2405*

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A Lifetime Performance Analysis of LED Luminaires Under Real-Operation Profiles. *Padmasali, A.N.*, +, *TED Jan. 2020 146-153*

Antiferroelectric Tunnel Junctions as Energy-Efficient Coupled Oscillators: Modeling, Analysis, and Application to Solving Combinatorial Optimization Problems. *Andrawis, R.*, +, *TED July 2020 2974-2980*

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Mg_{0.35}Zn_{0.65}O/Al/ZnO Photodetectors With Capability of Identifying Ultraviolet-A/Ultraviolet-B. *Liu, H.*, +, *TED July 2020 2812-2818*

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Electromicrofluidic Device on Multilayered Laser-Induced Polyamide Substrate for Diverse Electrochemical Applications. *Kothuru, A.*, +, *TED Nov. 2020 5097-5103*

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Complete Avalanche Process and Failure Mechanism of Trench-Gate FS-IGBT Under Unclamped Inductive Switching by Using Infrared Visualization Method. *Tong, X.*, +, *TED Sept. 2020 3908-3911*

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- Transformable Junctionless Transistor (T-JLT). *Han, J.*, +, *TED June 2020 2639-2644*
- Using Superlattice Structure in the Source of GNR-FET to Improve Its Switching Performance. *Behtoe, B.*, +, *TED March 2020 1334-1339*
- Vertically Stacked Gate-All-Around Structured Tunneling-Based Ternary-CMOS. *Kim, S.*, +, *TED Sept. 2020 3889-3893*
- Field emission**
- Facile Fabrication and High Field Emission Performance of 2-D Ti₃C₂T_x MXene Nanosheets for Vacuum Electronic Devices. *Wu, H.*, +, *TED Nov. 2020 5138-5143*
- Stabilized and Equalized Field-Emission Currents From Carbon Nanotube Emitters by Cascade Active-Current-Control. *Lee, J.*, +, *TED March 2020 1192-1197*

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Fabrication of Field Emission Device With Lateral-Cathode Triode for Lighting Applications. *Huang, C.*, +, *TED Dec. 2020 5755-5759*

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Fabrication, Structural, Electrical, and Optical Characterizations of p-Nanoparticle- and n-Nanotube-Based ZnO Homojunction. *Sil, I.*, +, *TED Oct. 2020 4256-4261*

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Fabrication of Coaxis-Gated ZnO Nanowire Field-Emitter Arrays With In-Plane Focusing Gate Electrode Structure. *Cao, X.*, +, *TED Feb. 2020 677-683*

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On-Chip Fully Integrated Field Emission Arrays for High-Voltage MEMS Applications. *Deka, N.*, +, *TED Sept. 2020 3753-3760*

Si Nanowire With Integrated Space-Charge-Limited Conducted Schottky Junction for Enhancing Field Electron Emission and Its Gated Devices. *Zeng, M.*, +, *TED Oct. 2020 4467-4472*

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Nanofabricated Low-Voltage Gated Si Field-Ionization Arrays. *Rughoobur, G.*, +, *TED Aug. 2020 3378-3384*

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High-Performance Flexible Resistive RAM With PVP:GO Composite and Ultrathin HfO_x Hybrid Bilayer. *Varun, I.*, +, *TED March 2020 949-954*

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Investigation of High-Frequency Fine Structure in the Current Output of Shaped Contact Planar Gunn Diodes. *Mindil, A.*, +, *TED May 2020 1946-1951*

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Analytical Model Developed for Precise Stress Estimation of Device Channel Within Advanced Planar MOSFET Architectures. *Lee, C.*, +, *TED April 2020 1498-1505*

Band Variations Caused by Strain Effects for Quantum Wires With Arbitrary Orientations. *Cihak, H.L.*, +, *TED Jan. 2020 270-276*

Carbon-Based Liner for RESET Current Reduction in Self-Heating Phase-Change Memory Cells. *De Proft, A.*, +, *TED Oct. 2020 4228-4233*

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Compact Modeling and Electrothermal Measurements of Indirectly Heated Phase-Change RF Switches. *Wainstein, N.*, +, *TED Nov. 2020 5182-5187*

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Enhanced Heat Dissipation of Phosphor Film in WLEDs by AlN-Coated Sapphire Plate. *Zheng, Z.*, +, *TED Aug. 2020 3180-3185*

High Output Power GaN-Based Green Resonant-Cavity Light-Emitting Diodes With Trapezoidal Quantum Wells. *Wu, H.*, +, *TED Sept. 2020 3650-3654*

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Polarization Independent Band Gaps in CMOS Back-End-of-Line for Monolithic High- Q MEMS Resonator Confinement. *Hudeczek, R.*, +, *TED Nov. 2020 4578-4581*

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Development of a Field Emission Image Sensor Tolerant to Gamma-Ray Irradiation. *Gotoh, Y.*, +, *TED April 2020 1660-1665*

Fission reactor instrumentation

Development of a Field Emission Image Sensor Tolerant to Gamma-Ray Irradiation. *Gotoh, Y.*, +, *TED April 2020 1660-1665*

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A Novel Confined Nitride-Trapping Layer Device for 3-D NAND Flash With Robust Retention Performances. *Fu, C.*, +, *TED March 2020 989-994*

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- Separation of Lateral Migration Components by Hole During the Short-Term Retention Operation in 3-D NAND Flash Memories. *Kim, S.*, +, *TED June 2020 2645-2647*
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- Force sensors**
- A Force and Temperature Sensor Array Based on 3-D Field-Coupled Thin-Film Transistors for Tactile Intelligence. *Li, W.*, +, *TED July 2020 2890-2895*
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- A New Technique for Mobility Extraction in MOSFETs in the Presence of Prominent Gate Oxide Trapping: Application to InGaAs MOSFETs. *Cai, X.*, +, *TED Aug. 2020 3075-3081*
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- Hetero-Interfacial Thermal Resistance Effects on Device Performance of Stacked Gate-All-Around Nanosheet FET. *Venkateswarlu, S.*, +, *TED Oct. 2020 4493-4499*
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- Analytical Current–Voltage Model for Double-Gate a-IGZO TFTs With Symmetric Structure for Above Threshold. *Hernandez-Barrios, Y.*, +, *TED May 2020 1980-1986*
- Analytical Drain Current and Capacitance Model for Amorphous InGaZnO TFTs Considering Temperature Characteristics. *He, H.*, +, *TED Sept. 2020 3637-3644*
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- Band Alignment and Interface Recombination in $\text{NiO}/\beta\text{-Ga}_2\text{O}_3$ Type-II p-n Heterojunctions. *Gong, H.*, +, *TED Aug. 2020 3341-3347*

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- Deep-Recessed β -Ga₂O₃ Delta-Doped Field-Effect Transistors With *In Situ* Epitaxial Passivation. *Joishi, C.*, +, *TED Nov. 2020 4813-4819*
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- Device and Circuit-Level Assessment of GaSb/Si Heterojunction Vertical Tunnel-FET for Low-Power Applications. *Tripathy, M.R.*, +, *TED March 2020 1285-1292*
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- Drain-Bias Transient Instability of Amorphous Indium–Gallium–Zinc Oxide Thin-Film Transistors. *Lai, Y.*, +, *TED Oct. 2020 4526-4529*
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- Effects of Interface Traps and Self-Heating on the Performance of GAA GaN Vertical Nanowire MOSFET. *Thingujam, T.*, +, *TED March 2020 816-821*
- Efficiency Droop Suppression and Light Output Power Enhancement of Deep Ultraviolet Light-Emitting Diode by Incorporating Inverted-V-Shaped Quantum Barriers. *Kang, Y.*, +, *TED Nov. 2020 4958-4962*
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- Electric-Based Thermal Characterization of GaN Technologies Affected by Trapping Effects. *Bremer, J.*, +, *TED May 2020 1952-1958*
- Electro-Thermo-Mechanical Reliability of Recessed Barrier AlGaIn/GaN Schottky Diodes Under Pulse Switching Conditions. *Shankar, B.*, +, *TED May 2020 2044-2051*
- Engineering a Unified Dielectric Solution for AlGaIn/GaN MOS-HFET Gate and Access Regions. *Azam, F.*, +, *TED March 2020 881-887*
- Enhancement of Hot Spot Cooling by Capped Diamond Layer Deposition for Multifinger AlGaIn/GaN HEMTs. *Zhang, H.*, +, *TED Jan. 2020 47-52*
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- Fabrication and Performance of Ti/Al/Ni/TiN Au-Free Ohmic Contacts for Undoped AlGaIn/GaN HEMT. *Li, X.*, +, *TED May 2020 1959-1964*
- Fin-Gated Nanochannel Array Gate-Recessed AlGaIn/GaN Metal-Oxide-Semiconductor High-Electron-Mobility Transistors. *Lee, C.*, +, *TED May 2020 1939-1945*
- Flexible Femtojoule Energy-Consumption In-Ga-Zn-O Synaptic Transistors With Extensively Tunable Memory Time. *Li, L.*, +, *TED Jan. 2020 105-112*
- Flexible Oxide-Based Schottky Neuromorphic TFTs With Configurable Spiking Dynamic Functions. *He, Y.*, +, *TED Nov. 2020 5216-5220*
- Forward Conduction Instability of Quasi-Vertical GaN p-i-n Diodes on Si Substrates. *Zhang, Y.*, +, *TED Oct. 2020 3992-3998*
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Genetic algorithms

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J**Jamming**

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On the Stability of Amorphous Silicon Temperature Sensors. *Lovecchio, N.*, +, *TED Aug. 2020 3348-3354*

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Lanthanum compounds

Impact of High-*k* Gate Dielectric on Self-Heating Effects in PiFETs Structure. *Belkhiria, M.*, +, *TED Sept. 2020 3522-3529*

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Heat Dissipation Enhancement of Phosphor-Converted White Laser Diodes by Thermally Self-Managing Phosphor-in-Glass. *Peng, Y.*, +, *TED Oct. 2020 4288-4292*

Stable in-Phase Mode Operation in Coherent VCSEL Array With an Integrated Phase Shifter. *Xun, M.*, +, *TED July 2020 2819-2824*

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High-Temperature Thermoelectric Energy Conversion Devices Using Si-Ge Thick Films Prepared by Laser Sintering of Nano/Micro Particles. *Xie, K.*, +, *TED May 2020 2113-2119*

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- Impact of AlGaIn/GaN Interface and Passivation on the Robustness of Low-Noise Amplifiers. *Huang, T.*, +, *TED June 2020 2297-2303*
- Impact of Electrical Stress on Defect Generation in Thin GeO₂/Ge Gate Stacks Fabricated by Thermal Oxidation. *Yuan, S.*, +, *TED June 2020 2516-2521*
- Impact of Film Stress of Field-Plate Dielectric on Electric Characteristics of GaN-HEMTs. *Ando, Y.*, +, *TED Dec. 2020 5421-5426*
- Impact of Residual Carbon on Avalanche Voltage and Stability of Polarization-Induced Vertical GaN p-n Junction. *Fabris, E.*, +, *TED Oct. 2020 3978-3982*
- Impact of Switching Voltage on Complementary Steep-Slope Tunnel Field Effect Transistor Circuits. *Kato, K.*, +, *TED Sept. 2020 3876-3882*
- Improved TDDb Reliability and Interface States in 5-nm Hf_{0.5}Zr_{0.5}O₂ Ferroelectric Technologies Using NH₃ Plasma and Microwave Annealing. *Chen, Y.*, +, *TED April 2020 1581-1585*
- Improvement of Electron Transport Property and on-Resistance in Normally-OFF Al₂O₃/AlGaIn/GaN MOS-HEMTs Using Post-Etch Surface Treatment. *Zhu, J.*, +, *TED Sept. 2020 3541-3547*
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- Influence of Metal Gate Electrodes on Electrical Properties of Atomic-Layer-Deposited Al-Rich HfAlO/Ga₂O₃ MOSCAPs. *Zhang, H.*, +, *TED April 2020 1730-1736*
- Investigating the Failure Mechanism of Short-Circuit Tests in 1.2-kV SiC JBS-Integrated MOSFETs. *Zhang, Y.*, +, *TED Oct. 2020 4027-4032*
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- Temperature Dependence of Ferroelectricity in Al-Doped HfO₂ Featuring a High *P_r* of 23.7 μC/cm². *Zhou, J.*, +, *TED Dec. 2020 5633-5638*
- The Impact of a Single Displacement Defect on Tunneling Field-Effect Transistors. *Kim, J.*, +, *TED Nov. 2020 4765-4769*
- The Investigation for Thickness-Dependent Electrical Performance on BaTiO₃/BiFeO₃ Bilayer Ferromagnetic Capacitors. *Lien, C.*, +, *TED Aug. 2020 3417-3423*
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- Lightweight Integrated Design of PUF and TRNG Security Primitives Based on eFlash Memory in 55-nm CMOS. *Larimian, S.*, +, *TED April 2020 1586-1592*
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- ReRAM: History, Status, and Future. *Chen, Y.*, *TED April 2020 1420-1433*
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- Exploiting Error Characteristic to Optimize Read Voltage for 3-D NAND Flash Memory. *Zhang, M.*, +, *TED Dec. 2020 5490-5496*
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- Life testing**
- A Generalized Methodology for Predicting the Lifetime Performance of LED Luminaire. *Padmasali, A.N.*, +, *TED July 2020 2831-2836*

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Enhancing Luminous Efficiency of Quantum Dot-Based Chip-on-Board Light-Emitting Diodes Using Polystyrene Fiber Mats. *Liang, G.*, +, *TED Oct. 2020 4530-4533*

Size-Dependent Photoresponse of Germanium Nanocrystals-Metal Oxide Semiconductor Photodetector. *Dhyani, V.*, +, *TED Feb. 2020 558-565*

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Stable in-Phase Mode Operation in Coherent VCSEL Array With an Integrated Phase Shifter. *Xun, M.*, +, *TED July 2020 2819-2824*

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Numerical Computation of Resonant Frequency and Field Distribution Based on S-Parameters in the Open Coaxial Resonator. *Chen, S.*, +, *TED Oct. 2020 4437-4441*

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A Compact Model of Analog RRAM With Device and Array Nonideal Effects for Neuromorphic Systems. *Liao, Y.*, +, *TED April 2020 1593-1599*

An Improved RRAM-Based Binarized Neural Network With High Variation-Tolerated Forward/Backward Propagation Module. *Zhang, Y.*, +, *TED Feb. 2020 469-473*

Bidirectional Analog Conductance Modulation for RRAM-Based Neural Networks. *Jiang, Z.*, +, *TED Nov. 2020 4904-4910*

Drain-Erase Scheme in Ferroelectric Field Effect Transistor—Part II: 3-D-NAND Architecture for In-Memory Computing. *Wang, P.*, +, *TED March 2020 962-967*

Investigation of Read Disturb and Bipolar Read Scheme on Multilevel RRAM-Based Deep Learning Inference Engine. *Shim, W.*, +, *TED June 2020 2318-2323*

Mechanical stability

High-Performance TiN/Al₂O₃/ZnO/Al₂O₃/TiN Flexible RRAM Device With High Bending Condition. *Kumar, D.*, +, *TED Feb. 2020 493-498*

Medical image processing

Automated Mini-Platform With 3-D Printed Paper Microstrips for Image Processing-Based Viscosity Measurement of Biological Samples. *Puneeth, S.B.*, +, *TED June 2020 2559-2565*

Medical signal processing

An Active Multielectrode Array for Collecting Surface Electromyogram Signals Using a-IGZO TFT Technology on Polyimide Substrate. *Mao, S.*, +, *TED April 2020 1613-1618*

Design Analysis and Human Tests of Foil-Based Wheezing Monitoring System for Asthma Detection. *Khan, S.M.*, +, *TED Jan. 2020 249-257*

Meetings

- Editorial Special Section on ESSDERC. *Andrieu, F.*, +, *TED Nov. 2020 4558*
 Editorial Special Section on Papers From the 2020 VLSI Symposium. *Ghione, G.*, *TED Dec. 2020 5305*

Membranes

- Characterizations of Electrolyte–Insulator–Semiconductor Sensors With Array Wells and a Stack-Sensing Membrane. *Chen, H.J.H.*, +, *TED Sept. 2020 3761–3766*
 Highly Sensitive p⁺/Si/Al Thermopile-Based Gas Flow Sensors by Using Front-Sided Bulk Micromachining Technology. *Wang, S.*, +, *TED April 2020 1781–1786*
 The Analysis of Potentiometric Flexible Arrayed Urea Biosensor Modified by Graphene Oxide and γ -Fe₂O₃ Nanoparticles. *Nien, Y.*, +, *TED Nov. 2020 5104–5110*

Memory architecture

- Computing-in-Memory Architecture Using Energy-Efficient Multilevel Voltage-Controlled Spin-Orbit Torque Device. *Shreya, S.*, +, *TED May 2020 1972–1979*
 High-Throughput In-Memory Computing for Binary Deep Neural Networks With Monolithically Integrated RRAM and 90-nm CMOS. *Yin, S.*, +, *TED Oct. 2020 4185–4192*
 Vertically Replaceable Memory Block Architecture for Stacked DRAM Systems by Wafer-on-Wafer (WOW) Technology. *Sugatani, S.*, +, *TED Nov. 2020 4606–4610*

Memory management

- Editorial Special Issue on “Memory Devices and Technologies for the Next Decade”. *Compagnoni, C.M.*, +, *TED April 2020 1369–1372*

Memory modules

- Editorial Special Issue on “Memory Devices and Technologies for the Next Decade”. *Compagnoni, C.M.*, +, *TED April 2020 1369–1372*

Memristor circuits

- Bidirectional Volatile Signatures of Metal–Oxide Memristors—Part I: Characterization. *Giotis, C.*, +, *TED Nov. 2020 5158–5165*
 Bidirectional Volatile Signatures of Metal–Oxide Memristors—Part II: Modeling. *Giotis, C.*, +, *TED Nov. 2020 5166–5173*
 Efficient Resistive Switching and Spike Rate Dependent Plasticity in a New CuCrO₂ Memristor for Plausible Neuromorphic Systems. *Boppidi, P.K.R.*, +, *TED Aug. 2020 3451–3458*
 Experimental Demonstration of Memristor-Aided Logic (MAGIC) Using Valence Change Memory (VCM). *Hoffer, B.*, +, *TED Aug. 2020 3115–3122*
 Self-Activation Neural Network Based on Self-Selective Memory Device With Rectified Multilevel States. *Wang, Z.*, +, *TED Oct. 2020 4166–4171*

Memristors

- Design of High Robustness BNN Inference Accelerator Based on Binary Memristors. *Qin, Y.*, +, *TED Aug. 2020 3435–3441*
 In-Memory Digital Comparator Based on a Single Multivalued One-Transistor-One-Resistor Memristor. *Cheng, L.*, +, *TED March 2020 1293–1296*
 Strategies to Improve the Accuracy of Memristor-Based Convolutional Neural Networks. *Pan, W.*, +, *TED March 2020 895–901*

Mercury (metal)

- Ultrasensitive Detection of Mercury Ions Under UV Illumination of MoS₂ Functionalized AlGaIn/GaN Transistor. *Nigam, A.*, +, *TED Dec. 2020 5693–5700*

Mercury compounds

- Dependence of the Modulation Transfer Function on the Material and Design Parameters of HgCdTe IR FPAs. *Lee, I.I.*, +, *TED Aug. 2020 3175–3179*
 Enhanced Performance of HgCdTe Long-Wavelength Infrared Photodetectors With nBn Design. *He, J.*, +, *TED May 2020 2001–2007*
 Enhanced Performance of HgCdTe Midwavelength Infrared Electron Avalanche Photodetectors With Guard Ring Designs. *Li, Q.*, +, *TED Feb. 2020 542–546*
 Low-Frequency Noise Spectroscopy Characterization of HgCdTe Infrared Detectors. *Zhu, L.*, +, *TED Feb. 2020 547–551*

Message passing

- Multiple-GPU-Based Simulation of Ka-Band Helix Traveling Wave Tube. *Wang, X.*, +, *TED June 2020 2585–2592*

Metal-insulator transition

- Controllable Functional Layer and Temperature-Dependent Characteristic in Niobium Oxide Insulator–Metal Transition Selector. *Zhang, Z.*, +, *TED July 2020 2771–2777*

- Enhancing Threshold Switching Characteristics and Stability of Vanadium Oxide-Based Selector With Vanadium Electrode. *Yeh, T.*, +, *TED Nov. 2020 5059–5062*

- Modeling and Design of a New Piezoelectronic Transistor for Ultralow-Voltage High-Speed Integrated Circuits. *Shiotsu, Y.*, +, *TED Sept. 2020 3852–3860*

Metal-semiconductor-metal structures

- Analysis of High-Temperature Carrier Transport Mechanisms for High Al-Content Al_{0.6}Ga_{0.4}N MSM Photodetectors. *Gu, Y.*, +, *TED Jan. 2020 160–165*

- In₂O₃/TiO₂ Heterostructure for Highly Responsive Low-Noise Ultraviolet Photodetector. *Moudgil, A.*, +, *TED Jan. 2020 166–172*

- V-Pits-Induced Photoresponse Enhancement in AlGaIn UV-B Photodetectors on Si (111). *Rathkanthiwar, S.*, +, *TED Oct. 2020 4281–4287*

Metallic epitaxial layers

- Low Contact Resistivity to Ge Using *In-Situ* B and Sn Incorporation by Chemical Vapor Deposition. *Tsai, C.*, +, *TED Nov. 2020 5053–5058*

Metallic thin films

- Design and Characterization of MoO₃/Mg/MoO₃ Interfaces. *Khusayfan, N.M.*, +, *TED Oct. 2020 4354–4359*

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- Fabrication and Performance of Ti/Al/Ni/TiN Au-Free Ohmic Contacts for Undoped AlGaIn/GaN HEMT. *Li, X.*, +, *TED May 2020 1959–1964*

- Investigation of Barrier Property of Amorphous Co–Ti Layer as Single Barrier/Liner in Local Co Interconnects. *Zhang, D.*, +, *TED May 2020 2076–2081*

- Investigation of Ultrathin Ni Germanosilicide for Advanced pMOS Contact Metallization. *Mao, S.*, +, *TED Nov. 2020 5039–5044*

- Reduction of MOS Interface Defects in TiN/Y₂O₃/Si_{0.78}Ge_{0.22} Structures by Trimethylaluminum Treatment. *Lee, T.*, +, *TED Oct. 2020 4067–4072*

- Technological Sensor on Coupled Radial Spirals. *Pchel'nikov, Y.N.*, +, *TED March 2020 1165–1170*

- Top-Gate Amorphous Indium-Gallium-Zinc-Oxide Thin-Film Transistors With Magnesium Metallized Source/Drain Regions. *Peng, H.*, +, *TED April 2020 1619–1624*

MFIS structures

- A Study on the Temperature-Dependent Operation of Fluorite-Structure-Based Ferroelectric HfO₂ Memory FeFET: A Temperature-Modulated Operation. *Ali, T.*, +, *TED July 2020 2793–2799*

- Analytical Modeling of Short-Channel Effects in MFIS Negative-Capacitance FET Including Quantum Confinement Effects. *Pandey, N.*, +, *TED Nov. 2020 4757–4764*

- Compact Modeling of Negative-Capacitance FDSOI FETs for Circuit Simulations. *Dabhi, C.K.*, +, *TED July 2020 2710–2716*

- Effect of Seed Layer on Gate-All-Around Poly-Si Nanowire Negative-Capacitance FETs With MFIS and MFIS Structures: Planar Capacitors to 3-D FETs. *Lee, S.*, +, *TED Feb. 2020 711–716*

- Exploration of Negative Capacitance in Gate-All-Around Si Nanosheet Transistors. *Sakib, F.I.*, +, *TED Nov. 2020 5236–5242*

- Ferroelectric HfZrO₂ With Electrode Engineering and Stimulation Schemes as Symmetric Analog Synaptic Weight Element for Deep Neural Network Training. *Hsiang, K.*, +, *TED Oct. 2020 4201–4207*

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- Analysis of Electrostatic MEMS Using Energy-Charge Landscape. *Raman, R.T.*, +, *TED Oct. 2020 4413–4420*

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- Electromicrofluidic Device on Multilayered Laser-Induced Polyamide Substrate for Diverse Electrochemical Applications. *Kothuru, A.*, +, *TED Nov. 2020 5097–5103*

- Gallium Nitride: A Versatile Compound Semiconductor as Novel Piezoelectric Film for Acoustic Tweezer in Manipulation of Cancer Cells. *Sun, C.*, +, *TED Aug. 2020 3355–3361*

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In Situ Observation of β -Ga₂O₃ Schottky Diode Failure Under Forward Biasing Condition. *Islam, Z.*, +, *TED Aug. 2020 3056-3061*

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Atomized Scan Method for High-Definition Silicon-Based OLED Microdisplays. *Chen, W.*, +, *TED Oct. 2020 4293-4299*

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Numerical Modeling of Glucose Biosensor With pH-Based Electrochemical Field-Effect Transistor Device. *Ba, M.*, +, *TED April 2020 1787-1792*

On-Chip Fully Integrated Field Emission Arrays for High-Voltage MEMS Applications. *Deka, N.*, +, *TED Sept. 2020 3753-3760*

Microfabrication

A Ka-Band Folded Waveguide Traveling Wave Tube With Lumped Resistance Metamaterial Absorber. *Bai, N.*, +, *TED March 2020 1248-1253*

A Micromachined Resonant Differential Pressure Sensor. *Li, Y.*, +, *TED Feb. 2020 640-645*

A New Approach for Developing a 3-D Stress Sensing Rosette Featuring Strain Engineering. *Balbola, A.A.*, +, *TED Feb. 2020 646-651*

Design and Development of a Double-Bridge Micromirror With Bending and Twisting Cantilevers for Multiobject Spectroscopy. *Kumar, A.*, +, *TED Oct. 2020 4392-4398*

Electromicrofluidic Device on Multilayered Laser-Induced Polyamide Substrate for Diverse Electrochemical Applications. *Kothuru, A.*, +, *TED Nov. 2020 5097-5103*

Fabrication of Coaxis-Gated ZnO Nanowire Field-Emitter Arrays With In-Plane Focusing Gate Electrode Structure. *Cao, X.*, +, *TED Feb. 2020 677-683*

Microcantilever Printed Back-to-Back ZnO Single-Nanowire Schottky Diodes. *Yadav, V.K.S.*, +, *TED Aug. 2020 3309-3314*

PDMS-Based Microfluidic Glucose Biofuel Cell Integrated With Optimized Laser-Induced Flexible Graphene Bioelectrodes. *Rewatkar, P.*, +, *TED April 2020 1832-1838*

Study of a 0.35 THz Extended Interaction Oscillator Driven by a Pseudospark-Sourced Sheet Electron Beam. *Xie, J.*, +, *TED Feb. 2020 652-658*

Wafer-Scale Fabricated On-Chip Thermionic Electron Sources With an Integrated Extraction Gate. *Wang, Y.*, +, *TED Nov. 2020 5132-5137*

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Fabrication of Microsensor for Detection of Low-Concentration Formaldehyde Gas in Formalin-Treated Fish. *Das, S.*, +, *TED Dec. 2020 5710-5716*

Highly Sensitive p⁺Si/Al Thermopile-Based Gas Flow Sensors by Using Front-Sided Bulk Micromachining Technology. *Wang, S.*, +, *TED April 2020 1781-1786*

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Analysis of Electrostatic MEMS Using Energy-Charge Landscape. *Raman, R.T.*, +, *TED Oct. 2020 4413-4420*

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Polarization Independent Band Gaps in CMOS Back-End-of-Line for Monolithic High-*Q* MEMS Resonator Confinement. *Hudeczek, R.*, +, *TED Nov. 2020 4578-4581*

SPICE-Based Multiphysics Model to Analyze the Dynamics of Ferroelectric Negative-Capacitance–Electrostatic MEMS Hybrid Actuators. *Raman, R.T.*, +, *TED Nov. 2020 5174-5181*

The Design of Aluminum Nitride-Based Lead-Free Piezoelectric MEMS Accelerometer System. *Chen, Z.*, +, *TED Oct. 2020 4399-4404*

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Inadequacy of Third-Order Elastic Coefficients for Predicting Nonlinearity in Highly n-Type-Doped Silicon Resonators. *Khazaeili, B.*, +, *TED Feb. 2020 614-621*

Polarization Independent Band Gaps in CMOS Back-End-of-Line for Monolithic High-*Q* MEMS Resonator Confinement. *Hudeczek, R.*, +, *TED Nov. 2020 4578-4581*

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On-Wafer FinFET-Based EUV/eBeam Detector Arrays for Advanced Lithography Processes. *Wang, C.*, +, *TED June 2020 2406-2413*

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Effect of Stress on Pull-in Voltage of RF MEMS SPDT Switch. *Bansal, D.*, +, *TED May 2020 2147-2152*

Sub-50-mV Nanoelectromechanical Switch Without Body Bias. *Saha, S.*, +, *TED Sept. 2020 3894-3897*

Microwave absorption

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Numerical Computation of Resonant Frequency and Field Distribution Based on S-Parameters in the Open Coaxial Resonator. *Chen, S.*, +, *TED Oct. 2020 4437-4441*

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Microwave System of Transverse Output for a High-Power *W*-Band Gyro-TWT. *Bogdashov, A.A.*, +, *TED March 2020 1221-1226*

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Effects of Self-Heating on f_T and f_{max} Performance of Graphene Field-Effect Transistors. *Bonmann, M.*, +, *TED March 2020 1277-1284*

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A V -Band Overmoded Coaxial Millimeter-Wave Oscillator Based on a New Method of Asymmetric Modes Suppression. *Chen, S.*, +, *TED June 2020 2573-2579*

A New Approach for High-Power Coaxial Magnetron Using Stacked Anode Resonators. *Joshi, M.K.*, +, *TED April 2020 1808-1813*

Extended Feedback System for Coupled Sub-THz Gyro-Devices to Provide New Regimes of Operation. *Marek, A.*, +, *TED Dec. 2020 5729-5735*

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Design of Thin Wire Metamaterial-Based Interaction Structure for Backward Wave Generation. *Narasimhan, P.*, +, *TED March 2020 1227-1233*

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Ultrathin-Barrier AlGaIn/GaN Hybrid-Anode-Diode With Optimized Barrier Thickness for Zero-Bias Microwave Mixer. *Zhou, Q.*, +, *TED March 2020 828-833*

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A High-Efficiency Ridged Magnetically Insulated Transmission Line Oscillator. *Xu, H.*, +, *TED Oct. 2020 4442-4446*

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Electrical Compact Modeling of SiGe Phototransistor: Impact of the Distributed Nature on Dynamic Behavior. *Bennour, A.*, +, *TED March 2020 1034-1040*

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Microwave resonators

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Design and Experimental Measurement of Input and Output Couplers for a 6–18-GHz High-Power Helix Traveling Wave Tube Amplifier. *Wu, G.*, +, *TED April 2020 1826-1831*

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Suppression of the Parasitic Oscillations in an X -Band Relativistic Coaxial Gyrotron Driven by an Intense Beam Current. *Zhang, D.*, +, *TED Dec. 2020 5750-5754*

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Clustered-Cavity Approach for the Performance Improvement of a Ka -Band Second-Harmonic Gyroklystron Amplifier. *Swati, M.V.*, +, *TED March 2020 1240-1247*

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A High-Efficiency Dual-Cavity Extended Interaction Oscillator. *Chang, Z.*, +, *TED Jan. 2020 335-340*

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Bias-Dependent Electron Velocity Extracted From N-Polar GaN Deep Recess HEMTs. *Romanczyk, B.*, +, *TED April 2020 1542-1546*

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A New Fabrication Method for Serpentine-Folded Waveguide Slow Wave Structure at *W*-Band. *Panigrahi, R.*, +, *TED March 2020 1198-1204*

A Novel Scheme for Gain and Power Enhancement of THz TWTs by Extended Interaction Cavities. *Shi, N.*, +, *TED Feb. 2020 667-672*

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MIM devices

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MIM structures

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MIMO systems

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Minority carriers

Ambient-Air-Processed Ambipolar Perovskite Phototransistor With High Photodetectivity. *Haque, F.*, +, *TED Aug. 2020 3215-3220*

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Mirrors

A Lifetime Performance Analysis of LED Luminaires Under Real-Operation Profiles. *Padmasali, A.N.*, +, *TED Jan. 2020 146-153*

Microwave System of Transverse Output for a High-Power *W*-Band Gyro-TWT. *Bogdashov, A.A.*, +, *TED March 2020 1221-1226*

MIS capacitors

Electrical Properties of Al₂O₃/ZnO Metal–Insulator–Semiconductor Capacitors. *Zhang, Q.*, +, *TED Nov. 2020 5033-5038*

Improving Current ON/OFF Ratio and Subthreshold Swing of Schottky-Gate AlGaIn/GaN HEMTs by Postmetallization Annealing. *Lee, H.*, +, *TED July 2020 2760-2764*

MIS devices

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A New Method to Correlate Human Body Model and Transmission Line Pulse Based on RC Thermal Equivalent Model. *Wang, Y.*, +, *TED Sept. 2020 3775-3780*

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Evaluation of Dynamic Avalanche Performance in 1.2-kV MOS-Bipolar Devices. *Luo, P.*, +, *TED Sept. 2020 3691-3697*

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Machine Learning-Based Statistical Approach to Analyze Process Dependencies on Threshold Voltage in Recessed Gate AlGaIn/GaN MIS-HEMTs. *Wu, T.*, +, *TED Dec. 2020 5448-5453*

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Prolonged Transient Behavior of Ultrathin Oxide MIS-Tunneling Diode Induced by Deep Depletion of Surrounded Coupling Electrode. *Hsu, T.*, +, *TED Aug. 2020 3411-3416*

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Ultra-Low Subthreshold Swing in Gated MIS(p) Tunnel Diodes With Engineered Oxide Local Thinning Layers. *Chiang, T.*, +, *TED April 2020 1887-1893*

MIS structures

Characterization and Modeling of Current Transport in Metal/Ferroelectric/Semiconductor Tunnel Junctions. *Franchini, G.*, +, *TED Sept. 2020 3729-3735*

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Prolonged Transient Behavior of Ultrathin Oxide MIS-Tunneling Diode Induced by Deep Depletion of Surrounded Coupling Electrode. *Hsu, T.*, +, *TED Aug. 2020 3411-3416*

MISFET

Hole-Induced Degradation in *E*-Mode GaN MIS-FETs: Impact of Substrate Terminations. *Hua, M.*, +, *TED Jan. 2020 217-223*

Improvement in Long-Term and High-Temperature Retention Stability of Ferroelectric Field-Effect Memory Transistors With Metal–Ferroelectric–Metal–Insulator–Semiconductor Gate-Stacks Using Al-Doped HfO₂ Thin Films. *Yoon, S.*, +, *TED Feb. 2020 499-504*

- Limits on Hysteresis-Free Sub-60 mV/Decade Operation of MFIS Nanowire Transistor. *Semwal, S.*, +, *TED Sept. 2020* 3868-3875
- Modeling the Influence of the Acceptor-Type Trap on the 2DEG Density for GaN MIS-HEMTs. *Shi, Y.*, +, *TED June 2020* 2290-2296
- Simulation Study of Single-Event Burnout in GaN MISFET With Schottky Element. *Wang, Y.*, +, *TED Dec. 2020* 5466-5471
- Mixed analog digital integrated circuits**
- Ambient Temperature-Induced Device Self-Heating Effects on Multi-Fin Si CMOS Logic Circuit Performance in N-14 to N-7 Scaled Technologies. *Venkateswarlu, S.*, +, *TED April 2020* 1530-1536
- Self-Activation Neural Network Based on Self-Selective Memory Device With Rectified Multilevel States. *Wang, Z.*, +, *TED Oct. 2020* 4166-4171
- Mixers (circuits)**
- Analysis of Surface Charge Effects and Edge Fringing Capacitance in Planar GaAs and GaN Schottky Barrier Diodes. *Orfao, B.*, +, *TED Sept. 2020* 3530-3535
- Mixing**
- Resistive Analysis of Scattering-Dependent Electrical Transport in Single-Wall Carbon-Nanotube Networks. *Tripathy, S.*, +, *TED Dec. 2020* 5676-5684
- MOCVD**
- A Comprehensive Analysis of the 2-DEG Transport Properties in $\text{In}_x\text{Al}_{1-x}\text{N}/\text{AlN}/\text{GaN}$ Heterostructure: Experiments and Numerical Simulations. *Qin, J.*, +, *TED Dec. 2020* 5427-5433
- Gallium Nitride and Silicon Transistors on 300 mm Silicon Wafers Enabled by 3-D Monolithic Heterogeneous Integration. *Then, H.W.*, +, *TED Dec. 2020* 5306-5314
- GaN Vertical-Channel Junction Field-Effect Transistors With Regrown p-GaN by MOCVD. *Yang, C.*, +, *TED Oct. 2020* 3972-3977
- Improvement of AlN Material Quality by High-Temperature Annealing Toward Power Diodes. *Ni, X.*, +, *TED Oct. 2020* 3988-3991
- V-Pits-Induced Photoresponse Enhancement in AlGaIn UV-B Photodetectors on Si (111). *Rathkanthiwar, S.*, +, *TED Oct. 2020* 4281-4287
- Wafer-Scale Si-GaN Monolithic Integrated E-Mode Cascode FET Realized by Transfer Printing and Self-Aligned Etching Technology. *Zhang, J.*, +, *TED Aug. 2020* 3304-3308
- MODFETs**
- Optimum Carbon Concentration in GaN-on-Silicon for Breakdown Enhancement in AlGaIn/GaN HEMTs. *Remesh, N.*, +, *TED June 2020* 2311-2317
- Molecular beam epitaxial growth**
- Effects of Annealing on the Behavior of Sn in GeSn Alloy and GeSn-Based Photodetectors. *Wang, L.*, +, *TED Aug. 2020* 3229-3234
- Large-Scale Fabrication of Submicrometer-Gate-Length MOSFETs With a Trilayer PtSe₂ Channel Grown by Molecular Beam Epitaxy. *Xiong, K.*, +, *TED March 2020* 796-801
- Molecular biophysics**
- N⁺ Pocket-Doped Vertical TFET for Enhanced Sensitivity in Biosensing Applications: Modeling and Simulation. *Devi, W.V.*, +, *TED May 2020* 2133-2139
- Optimization of Hetero-Gate-Dielectric Tunnel FET for Label-Free Detection and Identification of Biomolecules. *Ghosh, S.*, +, *TED May 2020* 2157-2164
- Molybdenum compounds**
- Alcohol-Based Sulfur Treatment for Improved Performance and Yield in Local Back-Gated and Channel-Length-Scaled MoS₂ FETs. *Sanjay, S.*, +, *TED Sept. 2020* 3711-3715
- Bias Stress Instability in Multilayered MoS₂ Field-Effect Transistors Under Pulse-Mode Operation. *Seo, S.G.*, +, *TED April 2020* 1864-1872
- Chalcogen-Assisted Enhanced Atomic Orbital Interaction at TMD-Metal Interface and Sulfur Passivation for Overall Performance Boost of 2-D TMD FETs. *Ansh, .*, +, *TED Feb. 2020* 717-724
- Conductance in a Nanoribbon of Topologically Insulating MoS₂ in the 1T' Phase. *Sverdlov, V.*, +, *TED Nov. 2020* 4687-4690
- Design and Characterization of MoO₃/Mg/MoO₃ Interfaces. *Khusayfan, N.M.*, +, *TED Oct. 2020* 4354-4359
- Design and Investigation of Split-Gate MoTe₂-Based FET as Single Transistor AND Gate Using Nonequilibrium Green's Function. *Kumar, P.*, +, *TED Nov. 2020* 5221-5228
- Energy-Efficient Monolithic 3-D SRAM Cell With BEOL MoS₂ FETs for SoC Scaling. *Hu, Y.P.*, +, *TED Oct. 2020* 4216-4221
- High-Quality CVD-MoS₂ Synthesized on Surface-Modified Al₂O₃ for High-Performance MoS₂ Field-Effect Transistors. *Song, X.*, +, *TED Nov. 2020* 5196-5200
- Monolayer MoSe₂-Based Tunneling Field Effect Transistor for Ultrasensitive Strain Sensing. *Dubey, P.K.*, +, *TED May 2020* 2140-2146
- Performance Evaluation and Device Physics Investigation of Negative-Capacitance MOSFETs Based on Ultrathin Body Silicon and Monolayer MoS₂. *Luo, S.*, +, *TED Aug. 2020* 3049-3055
- Realistic Modeling of MoS₂ Piezoelectric Transistor. *Alidoosty-Shahraki, M.*, +, *TED Aug. 2020* 3459-3465
- Ultralow Current Switching in Flexible Hybrid PVP:MoS₂/HfO_x Bilayer Devices. *Varun, I.*, +, *TED Aug. 2020* 3472-3477
- Ultrasensitive Detection of Mercury Ions Under UV Illumination of MoS₂ Functionalized AlGaIn/GaN Transistor. *Nigam, A.*, +, *TED Dec. 2020* 5693-5700
- Monolayers**
- A Lithography-Free Fabrication of Low-Operating Voltage-Driven, Very Large Channel Length Graphene Field-Effect Transistor With NH₃ Sensing Application. *Chourasia, N.K.*, +, *TED Oct. 2020* 4385-4391
- Assessing the Role of a Semiconductor's Anisotropic Permittivity in Hafnium Disulfide Monolayer Field-Effect Transistors. *Bennett, R.K.A.*, +, *TED June 2020* 2607-2613
- Effect of Self-Assembled Monolayers (SAMs) as Surface Passivation on the Flexible a-InSnZnO Thin-Film Transistors. *Zhong, W.*, +, *TED Aug. 2020* 3157-3162
- High-Quality CVD-MoS₂ Synthesized on Surface-Modified Al₂O₃ for High-Performance MoS₂ Field-Effect Transistors. *Song, X.*, +, *TED Nov. 2020* 5196-5200
- Impact of Gate-Source/Drain Underlap on the Performance of Monolayer SiC Schottky-Barrier Field-Effect Transistor. *Xie, H.*, +, *TED Oct. 2020* 4130-4135
- Interface Engineering With Polystyrene for High-Performance, Low-Voltage Driven Organic Thin Film Transistor. *Hasan, M.M.*, +, *TED April 2020* 1751-1756
- Large-Scale Fabrication of Submicrometer-Gate-Length MOSFETs With a Trilayer PtSe₂ Channel Grown by Molecular Beam Epitaxy. *Xiong, K.*, +, *TED March 2020* 796-801
- Low-Voltage IGZO TFTs Using Solution-Deposited OTS-Modified Ta₂O₅ Dielectric. *Mohammadian, N.*, +, *TED April 2020* 1625-1631
- Monolayer MoSe₂-Based Tunneling Field Effect Transistor for Ultrasensitive Strain Sensing. *Dubey, P.K.*, +, *TED May 2020* 2140-2146
- Performance Evaluation and Device Physics Investigation of Negative-Capacitance MOSFETs Based on Ultrathin Body Silicon and Monolayer MoS₂. *Luo, S.*, +, *TED Aug. 2020* 3049-3055
- Realistic Modeling of MoS₂ Piezoelectric Transistor. *Alidoosty-Shahraki, M.*, +, *TED Aug. 2020* 3459-3465
- Theoretical Analysis of Ballistic Current Transport in Monolayer Black Arsenic MOSFETs. *Seo, J.E.*, +, *TED Feb. 2020* 622-626
- Monolithic integrated circuits**
- Scaling Trends of Monolithic 3-D Complementary Metal-Oxide-Semiconductor Nanoelectromechanical Reconfigurable Logic Circuits. *Ko, J.W.*, +, *TED Sept. 2020* 3861-3867
- Monte Carlo methods**
- A Comprehensive Analysis of the 2-DEG Transport Properties in $\text{In}_x\text{Al}_{1-x}\text{N}/\text{AlN}/\text{GaN}$ Heterostructure: Experiments and Numerical Simulations. *Qin, J.*, +, *TED Dec. 2020* 5427-5433
- A Simple Method to Realize Millilens Array on Encapsulant Layer for Enhancing Light Efficiency of COB-LEDs. *Yu, X.*, +, *TED Sept. 2020* 3655-3659
- Analysis of Surface Charge Effects and Edge Fringing Capacitance in Planar GaAs and GaN Schottky Barrier Diodes. *Orfao, B.*, +, *TED Sept. 2020* 3530-3535
- Dependence of the Modulation Transfer Function on the Material and Design Parameters of HgCdTe IR FPAs. *Lee, I.I.*, +, *TED Aug. 2020* 3175-3179

- HRS Instability in Oxide-Based Bipolar Resistive Switching Cells. *Wiefels, S.*, +, *TED Oct. 2020 4208-4215*
- Investigation of Contact Edge Effects in the Channel of Planar Gunn Diodes. *Mindil, A.*, +, *TED Jan. 2020 53-56*
- Investigation of High-Frequency Fine Structure in the Current Output of Shaped Contact Planar Gunn Diodes. *Mindil, A.*, +, *TED May 2020 1946-1951*
- Kinetic Monte Carlo Simulation of Interface-Controlled Hafnia-Based Resistive Memory. *Xu, X.*, +, *TED Jan. 2020 118-124*
- Lower Power, Better Uniformity, and Stability CBRAM Enabled by Graphene Nanohole Interface Engineering. *Liu, Y.*, +, *TED March 2020 984-988*
- Mechanism for Unipolar Reset in Negative Thermophoresis Resistive Memory Devices. *Xu, X.*, +, *TED Dec. 2020 5815-5818*
- Modeling and Demonstration of Oxygen Vacancy-Based RRAM as Probabilistic Device for Sequence Learning. *Doevenspeck, J.*, +, *TED Feb. 2020 505-511*
- Monte Carlo Comparison of n-Type and p-Type Nanosheets With FinFETs: Effect of the Number of Sheets. *Bufler, F.M.*, +, *TED Nov. 2020 4701-4704*
- Multipactor Suppression by a Resonant Static Magnetic Field on a Dielectric Surface. *Zhang, X.*, +, *TED Dec. 2020 5723-5728*
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- Static and Transient Simulation of 4H-SiC VDMOS Using Full-Band Monte Carlo Simulation That Includes Real-Space Treatment of the Coulomb Interactions. *Cheng, C.*, +, *TED Sept. 2020 3705-3710*
- Strong Read and Write Interference Induced by Breakdown Failure in Crossbar Arrays. *Chang, C.*, +, *TED Dec. 2020 5497-5504*
- Systematic Modeling of Electrostatics, Transport, and Statistical Variability Effects of Interface Traps in End-of-the-Roadmap III-V MOSFETs. *Zagni, N.*, +, *TED April 2020 1560-1566*
- Write-Efficient STT/SOT Hybrid Triple-Level Cell for High-Density MRAM. *Xu, Y.*, +, *TED April 2020 1460-1465*
- MOS capacitors**
- A First Evaluation of Thick Oxide 3C-SiC MOS Capacitors Reliability. *Li, F.*, +, *TED Jan. 2020 237-242*
- Advanced Low-Temperature-High-Pressure Hydrogen Treatment for Interface Defect Passivation in Si- and SiGe-Channel MOSCAPs. *Chen, K.*, +, *TED Dec. 2020 5403-5407*
- Design and Characterization of MoO₃/Mg/MoO₃ Interfaces. *Khusayfan, N.M.*, +, *TED Oct. 2020 4354-4359*
- Improved TDDDB Reliability and Interface States in 5-nm Hf_{0.5}Zr_{0.5}O₂ Ferroelectric Technologies Using NH₃ Plasma and Microwave Annealing. *Chen, Y.*, +, *TED April 2020 1581-1585*
- Influence of Metal Gate Electrodes on Electrical Properties of Atomic-Layer-Deposited Al-Rich HfAlO₃/Ga₂O₃ MOSCAPs. *Zhang, H.*, +, *TED April 2020 1730-1736*
- Near-Interface Trap Model for the Low Temperature Conductance Signal in SiC MOS Capacitors With Nitrided Gate Oxides. *Nicholls, J.R.*, +, *TED Sept. 2020 3722-3728*
- MOS integrated circuits**
- Hot Carrier Degradation-Induced Dynamic Variability in FinFETs: Experiments and Modeling. *Yu, Z.*, +, *TED April 2020 1517-1522*
- On-Chip Over-Voltage Protection Design Against Surge Events on the CC Pin of USB Type-C Interface. *Ke, C.*, +, *TED July 2020 2702-2709*
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- Evaluation of Dynamic Avalanche Performance in 1.2-kV MOS-Bipolar Devices. *Luo, P.*, +, *TED Sept. 2020 3691-3697*
- MOSFET**
- 4H-SiC CMOS Transimpedance Amplifier of Gamma-Irradiation Resistance Over 1 MGy. *Masunaga, M.*, +, *TED Jan. 2020 224-229*
- 4H-SiC UMOFET With an Electric Field Modulation Region Below P-Body. *Cheng, Y.*, +, *TED Aug. 2020 3298-3303*
- V_t Extraction Methodologies Influence Process Induced V_t Variability: Does This Fact Still Hold for Advanced Technology Nodes?. *Bhoir, M.S.*, +, *TED Nov. 2020 4691-4695*
- A Junctionless Accumulation Mode NC-FinFET Gate Underlap Design for Improved Stability and Self-Heating Reduction. *Kumar, M.*, +, *TED Aug. 2020 3424-3430*
- A Low-Reverse-Recovery-Charge Superjunction MOSFET With P-Base and N-Pillar Schottky Contacts. *Li, P.*, +, *TED April 2020 1693-1698*
- A Method for Series-Resistance-Immune Extraction of Low-Frequency Noise Parameters in Nanoscale MOSFETs. *Tataridou, A.*, +, *TED Nov. 2020 4568-4572*
- A New Technique for Mobility Extraction in MOSFETs in the Presence of Prominent Gate Oxide Trapping: Application to InGaAs MOSFETs. *Cai, X.*, +, *TED Aug. 2020 3075-3081*
- A Novel 3.3-kV Integrated ETO (IETO) With Single-Gate Controlling. *Chen, R.*, +, *TED May 2020 2052-2057*
- A Predictive 3-D Source/Drain Resistance Compact Model and the Impact on 7 nm and Scaled FinFETs. *Wu, T.*, +, *TED June 2020 2255-2262*
- A Review of Hot Carrier Degradation in n-Channel MOSFETs—Part I: Physical Mechanism. *Mahapatra, S.*, +, *TED July 2020 2660-2671*
- A Review of Hot Carrier Degradation in n-Channel MOSFETs—Part II: Technology Scaling. *Mahapatra, S.*, +, *TED July 2020 2672-2681*
- A Stochastic Framework for the Time Kinetics of Interface and Bulk Oxide Traps for BTI, SILC, and TDDDB in MOSFETs. *Kumar, S.*, +, *TED Nov. 2020 4741-4748*
- A Vertical Combo Spacer to Optimize Electrothermal Characteristics of 7-nm Nanosheet Gate-All-Around Transistor. *Liu, R.*, +, *TED June 2020 2249-2254*
- Alcohol-Based Sulfur Treatment for Improved Performance and Yield in Local Back-Gated and Channel-Length-Scaled MoS₂ FETs. *Sanjay, S.*, +, *TED Sept. 2020 3711-3715*
- An Iterative Surface Potential Algorithm Including Interface Traps for Compact Modeling of SiC-MOSFETs. *Albrecht, M.*, +, *TED March 2020 855-862*
- Analysis and Modeling of Polarization Gradient Effect on Negative Capacitance FET. *Kao, M.*, +, *TED Oct. 2020 4521-4525*
- Analysis of RF Inductive Effect in S-Parameters of Body Contact PD-SOI MOSFETs. *Lee, K.*, +, *TED Oct. 2020 4054-4059*
- Analytical Model Developed for Precise Stress Estimation of Device Channel Within Advanced Planar MOSFET Architectures. *Lee, C.*, +, *TED April 2020 1498-1505*
- Analytical Model for Interface Traps-Dependent Back Bias Capability and Variability in Ultrathin Body and Box FDSOI MOSFETs. *Chen, W.*, +, *TED Nov. 2020 4573-4577*
- Application of 2DHG Diamond p-FET in Cascode With Normally-OFF Operation and a Breakdown Voltage of Over 1.7 kV. *Bi, T.*, +, *TED Oct. 2020 4006-4009*
- Breakdown Voltage Walk-in Phenomenon and Optimization for the Trench-Gate p-Type VDMOS Under Single Avalanche Stress. *Tong, X.*, +, *TED June 2020 2445-2450*
- BSIM Compact Model of Quantum Confinement in Advanced Nanosheet FETs. *Dasgupta, A.*, +, *TED Feb. 2020 730-737*
- Capacitorless 2T-DRAM for Higher Retention Time and Sense Margin. *Ansari, M.H.R.*, +, *TED March 2020 902-906*
- Charge-Based Compact Drain Current Modeling of InAs-OI-Si MOSFET Including Subband Energies and Band Nonparabolicity. *Maity, S.K.*, +, *TED June 2020 2282-2289*
- Comparative Analysis of Hot Carrier Degradation (HCD) in 10-nm Node nMOS/pMOS FinFET Devices. *Kim, J.*, +, *TED Dec. 2020 5396-5402*
- Comparative Study of SiC Planar MOSFETs With Different p-Body Designs. *Ni, W.*, +, *TED March 2020 1071-1076*
- Cryogenic Operation of Thin-Film FDSOI nMOS Transistors: The Effect of Back Bias on Drain Current and Transconductance. *Casse, M.*, +, *TED Nov. 2020 4636-4640*
- Curing of Aged Gate Dielectric by the Self-Heating Effect in MOSFETs. *Park, J.*, +, *TED March 2020 777-788*
- Deep Gate Field Penetration Au:ZrO₂ Metal-Insulator Tunneling Transistor. *McDermott, A.J.*, +, *TED June 2020 2627-2632*

- Deep-Depletion Effect in SOI Substrates and its Application in Photodetectors With Tunable Responsivity and Detection Range. *Arsalan, M.*, +, *TED Aug. 2020 3256-3262*
- Design and Investigation of Split-Gate MoTe₂-Based FET as Single Transistor AND Gate Using Nonequilibrium Green's Function. *Kumar, P.*, +, *TED Nov. 2020 5221-5228*
- Design Considerations for Si- and Ge-Stacked Nanosheet pMOSFETs Based on Quantum Transport Simulations. *Zhang, S.*, +, *TED Jan. 2020 26-32*
- Design Optimization Techniques in Nanosheet Transistor for RF Applications. *Kushwaha, P.*, +, *TED Oct. 2020 4515-4520*
- Design Principles of Self-Compensated NBTI-Free Negative Capacitor FinFET. *Karda, K.*, +, *TED June 2020 2238-2242*
- Device, Circuit, and Reliability Assessment of Drain-Extended FinFETs for Sub-14 nm System on Chip Applications. *Kumar, B.S.*, +, *TED Nov. 2020 4728-4735*
- Effect of Charge Partitioning on IM3 Prediction in SOI-LDMOS Transistors. *Gupta, S.*, +, *TED Feb. 2020 606-613*
- Effects of Contact Potential and Sidewall Surface Plane on the Performance of GaN Vertical Nanowire MOSFETs for Low-Voltage Operation. *Son, D.*, +, *TED April 2020 1547-1552*
- Effects of Interface Traps and Self-Heating on the Performance of GAA GaN Vertical Nanowire MOSFET. *Thingujam, T.*, +, *TED March 2020 816-821*
- Effects of Scaling on Analog FoMs of UTBB FD-SOI MOS Transistors: A Detailed Analysis. *Bhoir, M.S.*, +, *TED Aug. 2020 3035-3041*
- Engineering a Unified Dielectric Solution for AlGaIn/GaN MOS-HFET Gate and Access Regions. *Azam, F.*, +, *TED March 2020 881-887*
- Engineering Schemes for Bulk FinFET to Simultaneously Improve ESD/Latch-Up Behavior and Hot Carrier Reliability. *Paul, M.*, +, *TED July 2020 2745-2751*
- Equivalent DG Dimensions Concept for Compact Modeling of Short-Channel and Thin Body GAA MOSFETs Including Quantum Confinement. *Yilmaz, K.*, +, *TED Dec. 2020 5381-5387*
- Exploration of Negative Capacitance in Gate-All-Around Si Nanosheet Transistors. *Sakib, F.I.*, +, *TED Nov. 2020 5236-5242*
- Fabrication of Vertically Stacked Nanosheet Junctionless Field-Effect Transistors and Applications for the CMOS and CFET Inverters. *Sung, P.*, +, *TED Sept. 2020 3504-3509*
- Fin-Gated Nanochannel Array Gate-Recessed AlGaIn/GaN Metal-Oxide-Semiconductor High-Electron-Mobility Transistors. *Lee, C.*, +, *TED May 2020 1939-1945*
- Free Carrier Mobility, Series Resistance, and Threshold Voltage Extraction in Junction FETs. *Makris, N.*, +, *TED Nov. 2020 4658-4661*
- Gate-Induced Drain Leakage in Negative Capacitance FinFETs. *Gaidhane, A.D.*, +, *TED March 2020 802-809*
- Gate-Length Dependence of Vertical GaSb Nanowire p-MOSFETs on Si. *Jonsson, A.*, +, *TED Oct. 2020 4118-4122*
- Ge-GaAs-Ge Heterojunction MOSFETs for Mixed-Signal Applications. *Mech, B.C.*, +, *TED Sept. 2020 3585-3591*
- Generalized Constant Current Method for Determining MOSFET Threshold Voltage. *Bucher, M.*, +, *TED Nov. 2020 4559-4562*
- Geometric Modeling of Thermal Resistance in GaN HEMTs on Silicon. *Gonzalez, B.*, +, *TED Dec. 2020 5408-5414*
- High-Quality CVD-MoS₂ Synthesized on Surface-Modified Al₂O₃ for High-Performance MoS₂ Field-Effect Transistors. *Song, X.*, +, *TED Nov. 2020 5196-5200*
- High-Voltage Drain-Extended FinFET With a High-*k* Dielectric Field Plate. *Kim, H.*, +, *TED March 2020 1077-1084*
- Hot-Carrier-Induced Degradation and Optimization for 700-V High-Voltage Lateral DMOS by the AC Stress. *Liu, S.*, +, *TED March 2020 1090-1097*
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- Effects of Annealing on the Behavior of Sn in GeSn Alloy and GeSn-Based Photodetectors. *Wang, L.*, +, *TED Aug. 2020 3229-3234*
- Fabrication, Structural, Electrical, and Optical Characterizations of p-Nanoparticle- and n-Nanotube-Based ZnO Homo Junction. *Sil, I.*, +, *TED Oct. 2020 4256-4261*
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- Si Nanowire With Integrated Space-Charge- Limited Conducted Schottky Junction for Enhancing Field Electron Emission and Its Gated Devices. *Zeng, M.*, +, *TED Oct. 2020 4467-4472*
- Schottky gate field effect transistors**
- Cause and Effects of OFF-State Degradation in Hydrogen-Terminated Diamond MESFETs. *De Santi, C.*, +, *TED Oct. 2020 4021-4026*
- Diamond Field-Effect Transistors With V₂O₅-Induced Transfer Doping: Scaling to 50-nm Gate Length. *Crawford, K.G.*, +, *TED June 2020 2270-2275*
- Effect of Annealing Temperature on Performances of Boron-Doped Diamond Metal-Semiconductor Field-Effect Transistors. *Liu, J.*, +, *TED April 2020 1680-1685*
- Flexible Oxide-Based Schottky Neuromorphic TFTs With Configurable Spiking Dynamic Functions. *He, Y.*, +, *TED Nov. 2020 5216-5220*
- Impact of Gate-Source/Drain Underlap on the Performance of Monolayer SiC Schottky-Barrier Field-Effect Transistor. *Xie, H.*, +, *TED Oct. 2020 4130-4135*
- Improving Current ON/OFF Ratio and Subthreshold Swing of Schottky-Gate AlGaIn/GaN HEMTs by Postmetallization Annealing. *Lee, H.*, +, *TED July 2020 2760-2764*
- Schrodinger equation**
- A Comprehensive Analysis of the 2-DEG Transport Properties in In_xAl_{1-x}N/AlN/GaN Heterostructure: Experiments and Numerical Simulations. *Qin, J.*, +, *TED Dec. 2020 5427-5433*
- A Predictive 3-D Source/Drain Resistance Compact Model and the Impact on 7 nm and Scaled FinFETs. *Wu, T.*, +, *TED June 2020 2255-2262*
- Analytical Modeling of Short-Channel Effects in MFIS Negative-Capacitance FET Including Quantum Confinement Effects. *Pandey, N.*, +, *TED Nov. 2020 4757-4764*
- Charge-Based Compact Drain Current Modeling of InAs-OI-Si MOSFET Including Subband Energies and Band Nonparabolicity. *Maity, S.K.*, +, *TED June 2020 2282-2289*
- Monolayer MoSe₂-Based Tunneling Field Effect Transistor for Ultrasensitive Strain Sensing. *Dubey, P.K.*, +, *TED May 2020 2140-2146*
- Seals (stoppers)**
- On-Chip Fully Integrated Field Emission Arrays for High-Voltage MEMS Applications. *Deka, N.*, +, *TED Sept. 2020 3753-3760*
- Secondary cells**
- Experimental Study of the Direct-Charge Beta Radiation Method for Energy Harvesting. *Haim, Y.*, +, *TED Nov. 2020 5076-5081*
- Secondary ion mass spectra**
- Degradation Mechanism of Ge N⁺-P Shallow Junction With Thin GeSn Surface Layer. *Tsui, B.*, +, *TED March 2020 1120-1125*
- Impact of Residual Carbon on Avalanche Voltage and Stability of Polarization-Induced Vertical GaN p-n Junction. *Fabris, E.*, +, *TED Oct. 2020 3978-3982*
- Investigation of DIBS-Deposited CdZnO/ZnO-Based Multiple Quantum Well for Large-Area Photovoltaic Application. *Siddharth, G.*, +, *TED Dec. 2020 5587-5592*
- Spatially Resolved Diffusion of Aluminum in 4H-SiC During Postimplantation Annealing. *Muting, J.*, +, *TED Oct. 2020 4360-4365*
- Secondary ion mass spectroscopy**
- Developing 13-kV 4H-SiC MOSFETs: Significance of Implant Straggle, Channel Design, and MOS Process on Static Performance. *Yun, N.*, +, *TED Oct. 2020 4346-4353*
- Seebeck effect**
- High-Temperature Thermoelectric Energy Conversion Devices Using Si-Ge Thick Films Prepared by Laser Sintering of Nano/Micro Particles. *Xie, K.*, +, *TED May 2020 2113-2119*
- The Demonstration of 3-D Bi_{2.0}Te_{2.7}Se_{0.3}/Bi_{0.4}Te_{3.0}Sb_{1.6} Thermoelectric Devices by Ionized Sputter System. *Liao, M.*, +, *TED Jan. 2020 406-408*
- Segregation**
- Effects of Annealing on the Behavior of Sn in GeSn Alloy and GeSn-Based Photodetectors. *Wang, L.*, +, *TED Aug. 2020 3229-3234*
- Selenium**
- Use of Pulse-Height Spectroscopy to Characterize the Hole Conduction Mechanism of a Polyimide Blocking Layer Used in Amorphous-Selenium Radiation Detectors. *Camlica, A.*, +, *TED Feb. 2020 633-639*
- Self-assembly**
- Effect of Self-Assembled Monolayers (SAMs) as Surface Passivation on the Flexible a-InSnZnO Thin-Film Transistors. *Zhong, W.*, +, *TED Aug. 2020 3157-3162*
- Low-Voltage IGZO TFTs Using Solution-Deposited OTS-Modified Ta₂O₅ Dielectric. *Mohammadian, N.*, +, *TED April 2020 1625-1631*
- Si Nanowire With Integrated Space-Charge- Limited Conducted Schottky Junction for Enhancing Field Electron Emission and Its Gated Devices. *Zeng, M.*, +, *TED Oct. 2020 4467-4472*
- Semiconductor counters**
- Design and Simulation of 3-D CdTe Pillar Detectors. *Ellakany, A.*, +, *TED Dec. 2020 5564-5571*
- Fully Depleted MAPS in 110-nm CMOS Process With 100-300- μ m Active Substrate. *Pancheri, L.*, +, *TED June 2020 2393-2399*
- Use of Pulse-Height Spectroscopy to Characterize the Hole Conduction Mechanism of a Polyimide Blocking Layer Used in Amorphous-Selenium Radiation Detectors. *Camlica, A.*, +, *TED Feb. 2020 633-639*
- Semiconductor device breakdown**
- (Ultra)Wide-Bandgap Vertical Power FinFETs. *Zhang, Y.*, +, *TED Oct. 2020 3960-3971*

- 4H-SiC UMOSFET With an Electric Field Modulation Region Below P-Body. *Cheng, Y.*, +, *TED Aug. 2020 3298-3303*
- A First Evaluation of Thick Oxide 3C-SiC MOS Capacitors Reliability. *Li, F.*, +, *TED Jan. 2020 237-242*
- A Novel 3.3-kV Integrated ETO (IETO) With Single-Gate Controlling. *Chen, R.*, +, *TED May 2020 2052-2057*
- A Novel Double-RESURF SOI-LIGBT With Improved $V_{ON}-E_{OFF}$ Tradeoff and Low Saturation Current. *Hu, H.*, +, *TED March 2020 1059-1065*
- A Novel Ultralow $R_{ON,sp}$ Triple RESURF LDMOS With Sandwich n-p-n Layer. *Qiao, M.*, +, *TED Dec. 2020 5605-5612*
- A Stochastic Framework for the Time Kinetics of Interface and Bulk Oxide Traps for BTI, SILC, and TDD in MOSFETs. *Kumar, S.*, +, *TED Nov. 2020 4741-4748*
- A Trench-Field-Plate High-Voltage Power MOSFET. *Xiao, C.*, +, *TED June 2020 2482-2488*
- Accumulation-Mode Device: New Power MOSFET Breaking Superjunction Silicon Limit by Simulation Study. *Duan, B.*, +, *TED March 2020 1085-1089*
- Analysis of an AlGaIn/AlN Super-Lattice Buffer Concept for 650-V Low-Dispersion and High-Reliability GaN HEMTs. *Heuken, L.*, +, *TED March 2020 1113-1119*
- Analysis of DC, Channel Temperature, and RF Performance of *In Situ* SiN/AlGaIn-Sandwich-Barrier/GaN/Al_{0.05}GaN HEMTs. *Yang, L.*, +, *TED Oct. 2020 4147-4151*
- Analysis of MIS-HEMT Device Edge Behavior for GaN Technology Using New Differential Method. *Kammeugne, R.K.*, +, *TED Nov. 2020 4649-4653*
- Application of 2DHG Diamond p-FET in Cascode With Normally-OFF Operation and a Breakdown Voltage of Over 1.7 kV. *Bi, T.*, +, *TED Oct. 2020 4006-4009*
- Breakdown Voltage Walk-in Phenomenon and Optimization for the Trench-Gate p-Type VDMOS Under Single Avalanche Stress. *Tong, X.*, +, *TED June 2020 2445-2450*
- Cause and Effects of OFF-State Degradation in Hydrogen-Terminated Diamond MESFETs. *De Santi, C.*, +, *TED Oct. 2020 4021-4026*
- Comparison of 2.3-kV 4H-SiC Accumulation-Channel Planar Power MOSFETs Fabricated With Linear, Square, Hexagonal, and Octagonal Cell Topologies. *Agarwal, A.*, +, *TED Sept. 2020 3673-3678*
- Deep-Recessed β -Ga₂O₃ Delta-Doped Field-Effect Transistors With *In Situ* Epitaxial Passivation. *Joishi, C.*, +, *TED Nov. 2020 4813-4819*
- Design and Fabrication Approaches of 400–600 V 4H-SiC Lateral MOSFETs for Emerging Power ICs Application. *Yun, N.*, +, *TED Nov. 2020 5005-5011*
- Design and Fabrication of Vertical GaN p-n Diode With Step-Etched Triple-Zone Junction Termination Extension. *Lee, H.*, +, *TED Sept. 2020 3553-3557*
- Design Guidelines and Performance Tradeoffs in Recessed AlGaIn/GaN Schottky Barrier Diodes. *Soni, A.*, +, *TED Nov. 2020 4834-4841*
- Design of a β -Ga₂O₃ Schottky Barrier Diode With p-Type III-Nitride Guard Ring for Enhanced Breakdown. *Roy, S.*, +, *TED Nov. 2020 4842-4848*
- Design Strategies for Mesa-Type GaN-Based Schottky Barrier Diodes for Obtaining High Breakdown Voltage and Low Leakage Current. *Jia, X.*, +, *TED May 2020 1931-1938*
- Diode-Less SiC Power Module With Countermeasures Against Bipolar Degradation to Achieve Ultrahigh Power Density. *Ishigaki, T.*, +, *TED May 2020 2035-2043*
- Distinct Failure Modes of AlGaIn/GaN HEMTs Under ESD Conditions. *Shankar, B.*, +, *TED April 2020 1567-1574*
- Edge Termination for III-Nitride Vertical Power Devices Using Polarization Engineering. *Peart, M.R.*, +, *TED Feb. 2020 571-575*
- Edge Termination With Enhanced Field-Limiting Rings Insensitive to Surface Charge for High-Voltage SiC Power Devices. *Hirao, T.*, +, *TED July 2020 2850-2853*
- Effects of Interface Traps and Self-Heating on the Performance of GAA GaN Vertical Nanowire MOSFET. *Thingujam, T.*, +, *TED March 2020 816-821*
- Experimental Characterization of Charge Trapping Dynamics in 100-nm AlN/GaN/AlGaIn-on-Si HEMTs by Wideband Transient Measurements. *Angelotti, A.M.*, +, *TED Aug. 2020 3069-3074*
- Experimental Determination of Impact Ionization Coefficients Along $\langle 1120 \rangle$ in 4H-SiC. *Stefanakos, D.*, +, *TED Sept. 2020 3740-3744*
- Gate Leakage Suppression and Breakdown Voltage Enhancement in p-GaN HEMTs Using Metal/Graphene Gates. *Zhou, G.*, +, *TED March 2020 875-880*
- Guiding Principles for Trench Schottky Barrier Diodes Based on Ultrawide Bandgap Semiconductors: A Case Study in Ga₂O₃. *Li, W.*, +, *TED Oct. 2020 3938-3947*
- High-Performance Normally-OFF AlGaIn/GaN Fin-MISHEMT on Silicon With Low Work Function Metal-Source Contact Ledge. *Huang, Y.*, +, *TED Dec. 2020 5434-5440*
- High-Voltage Drain-Extended FinFET With a High- k Dielectric Field Plate. *Kim, H.*, +, *TED March 2020 1077-1084*
- Hole-Induced Degradation in E-Mode GaN MIS-FETs: Impact of Substrate Terminations. *Hua, M.*, +, *TED Jan. 2020 217-223*
- Impact of Implanted Edge Termination on Vertical β -Ga₂O₃ Schottky Barrier Diodes Under OFF-State Stressing. *Zhang, Y.*, +, *TED Oct. 2020 3948-3953*
- Impact of Residual Carbon on Avalanche Voltage and Stability of Polarization-Induced Vertical GaN p-n Junction. *Fabris, E.*, +, *TED Oct. 2020 3978-3982*
- Impact of Varied Buffer Layer Designs on Single-Event Response of 1.2-kV SiC Power MOSFETs. *Lu, J.*, +, *TED Sept. 2020 3698-3704*
- Impacts of Stress Voltage and Channel Length on Hot-Carrier Characteristics of Tunnel Field-Effect Thin-Film Transistor. *Ma, W.C.*, +, *TED Nov. 2020 5243-5246*
- Improvement of Electron Transport Property and on-Resistance in Normally-OFF Al₂O₃/AlGaIn/GaN MOS-HEMTs Using Post-Etch Surface Treatment. *Zhu, J.*, +, *TED Sept. 2020 3541-3547*
- Influence of Different Surface Morphologies on the Performance of High-Voltage, Low-Resistance Diamond Schottky Diodes. *Reinke, P.*, +, *TED June 2020 2471-2477*
- Investigation of the Temperature Dependence of Hot-Carrier Degradation in Si MOSFETs Using Spectroscopic Charge Pumping. *Ruch, B.*, +, *TED Oct. 2020 4092-4098*
- Investigation of Wide- and Ultrawide-Bandgap Semiconductors From Impact-Ionization Coefficients. *Nouketcha, F.L.L.*, +, *TED Oct. 2020 3999-4005*
- Low-Frequency Noise Characteristics Under the OFF-State Stress. *Lee, G.*, +, *TED Oct. 2020 4366-4371*
- New Strained LDMOS With Ultralow ON-Resistance by Si_{1-y}C_y Source Stressor for About 20 V Low-Voltage Applications. *Li, M.*, +, *TED Nov. 2020 4998-5004*
- Novel Drain-Connected Field Plate GaN HEMT Designs for Improved $V_{BD}-R_{ON}$ Tradeoff and RF PA Performance. *Soni, A.*, +, *TED April 2020 1718-1725*
- Numerical Solutions for Electric Field Lines and Breakdown Voltages in Superjunction-Like Power Devices. *Huang, H.*, +, *TED Sept. 2020 3898-3902*
- On the Trap Locations in Bulk FinFETs After Hot Carrier Degradation (HCD). *Yu, Z.*, +, *TED July 2020 3005-3009*
- Physical Insights Into the ESD Behavior of Drain Extended FinFETs (DeFinFETs) and Unique Current Filament Dynamics. *Kumar, B.S.*, +, *TED July 2020 2717-2724*
- Quick Design of a Superjunction Considering Charge Imbalance Due to Process Variations. *Akshay, K.*, +, *TED Aug. 2020 3024-3029*
- RESURF n-LDMOS Transistor for Advanced Integrated Circuits in 4H-SiC. *WeiBe, J.*, +, *TED Aug. 2020 3278-3284*
- Simulation Study on the Optimization and Scaling Behavior of LDMOS Transistors for Low-Voltage Power Applications. *Saadat, A.*, +, *TED Nov. 2020 4990-4997*
- Temperature Dependence of Conductivity Modulation in SiC Bipolar Junction Transistors. *Asada, S.*, +, *TED April 2020 1699-1704*

- The Effects of Gate-Connected Field Plates on Hotspot Temperatures of AlGaIn/GaN HEMTs. *Dundar, C.*, +, *TED Jan. 2020 57-62*
- The New Structure and Analytical Model of a High-Voltage Interconnection Shielding Structure With High- k Dielectric Pillar. *Du, L.*, +, *TED April 2020 1745-1750*
- Theoretical Analysis of ON-State Performance Limit of 4H-SiC IGBT in Field-Stop Technology. *Luo, P.*, +, *TED Dec. 2020 5621-5627*
- Understanding Short-Circuit Failure Mechanism of Double-Trench SiC Power MOSFETs. *Wei, J.*, +, *TED Dec. 2020 5593-5599*

Semiconductor device doping

- Corrections to "Optimization and Scaling of Ge-Pocket TFET" [Dec 18 5289-5294]. *Li, W.*, *TED March 2020 1361*

Semiconductor device manufacture

- A Trench-Field-Plate High-Voltage Power MOSFET. *Xiao, C.*, +, *TED June 2020 2482-2488*
- AC-SSRM 2-D Cross-Sectional Doping Profiling for DRAM Access Devices Contact Implants. *Qin, S.*, *TED Nov. 2020 5028-5032*
- Achieving High Mobility and Excellent Stability in Amorphous In–Ga–Zn–Sn–O Thin-Film Transistors. *Choi, I.M.*, +, *TED March 2020 1014-1020*
- Charge-Based Model for the Drain-Current Variability in Organic Thin-Film Transistors Due to Carrier-Number and Correlated-Mobility Fluctuation. *Nikolaou, A.*, +, *TED Nov. 2020 4667-4671*
- Curing of Aged Gate Dielectric by the Self-Heating Effect in MOSFETs. *Park, J.*, +, *TED March 2020 777-788*
- Process Variation Analysis of Device Performance Using Virtual Fabrication: Methodology Demonstrated on a CMOS 14-nm FinFET Vehicle. *Vincent, B.*, +, *TED Dec. 2020 5374-5380*

Semiconductor device measurement

- A Drain–Source Connection Technique: Thermal Resistance Measurement Method for GaN HEMTs Using TSEP at High Voltage. *Li, X.*, +, *TED Dec. 2020 5454-5459*
- A New Technique for Mobility Extraction in MOSFETs in the Presence of Prominent Gate Oxide Trapping: Application to InGaAs MOSFETs. *Cai, X.*, +, *TED Aug. 2020 3075-3081*
- Diamond Field-Effect Transistors With V_2O_5 -Induced Transfer Doping: Scaling to 50-nm Gate Length. *Crawford, K.G.*, +, *TED June 2020 2270-2275*
- Elucidation of Inhomogeneous Heterojunction Performance of Al/Cu₅FeS₄ Schottky Diode With a Gaussian Distribution of Barrier Heights. *Sil, S.*, +, *TED May 2020 2082-2087*
- Experimental Characterization of Charge Trapping Dynamics in 100-nm AlN/GaN/AlGaIn-on-Si HEMTs by Wideband Transient Measurements. *Angelotti, A.M.*, +, *TED Aug. 2020 3069-3074*
- Geometric Modeling of Thermal Resistance in GaN HEMTs on Silicon. *Gonzalez, B.*, +, *TED Dec. 2020 5408-5414*
- Impact of Film Stress of Field-Plate Dielectric on Electric Characteristics of GaN-HEMTs. *Ando, Y.*, +, *TED Dec. 2020 5421-5426*
- Improving Current ON/OFF Ratio and Subthreshold Swing of Schottky-Gate AlGaIn/GaN HEMTs by Postmetallization Annealing. *Lee, H.*, +, *TED July 2020 2760-2764*
- Influence of Metal Gate Electrodes on Electrical Properties of Atomic-Layer-Deposited Al-Rich HfAlO/Ga₂O₃ MOSCAPs. *Zhang, H.*, +, *TED April 2020 1730-1736*
- Low-Frequency Noise Investigation of GaN/AlGaIn Metal–Oxide–Semiconductor High-Electron-Mobility Field-Effect Transistor With Different Gate Length and Orientation. *Takakura, K.*, +, *TED Aug. 2020 3062-3068*
- Measuring Thermal Resistance of GaN HEMTs Using Modulation Method. *Smirnov, V.I.*, +, *TED Oct. 2020 4112-4117*
- RESURF n-LDMOS Transistor for Advanced Integrated Circuits in 4H-SiC. *WeiBe, J.*, +, *TED Aug. 2020 3278-3284*
- Short-Pulse Properties of the Gunn Diode. *Semyonov, E.V.*, +, *TED May 2020 2100-2105*
- Suppression of Edge Effect Induced by Positive Gate Bias Stress in Low-Temperature Polycrystalline Silicon TFTs With Channel Width Extension Over Source/Drain Regions. *Wang, Y.*, +, *TED Dec. 2020 5552-5556*

Semiconductor device metallization

- Improving Current ON/OFF Ratio and Subthreshold Swing of Schottky-Gate AlGaIn/GaN HEMTs by Postmetallization Annealing. *Lee, H.*, +, *TED July 2020 2760-2764*
- Optimization of Ohmic Contact for AlGaIn/GaN HEMT on Low-Resistivity Silicon. *Benakaprasad, B.*, +, *TED March 2020 863-868*
- Refractory W Ohmic Contacts to H-Terminated Diamond. *Vardi, A.*, +, *TED Sept. 2020 3516-3521*

Semiconductor device models

- 4H-SiC UMOSFET With an Electric Field Modulation Region Below P-Body. *Cheng, Y.*, +, *TED Aug. 2020 3298-3303*
- A Compact Current–Voltage Model for 2-D-Semiconductor-Based Lateral Homo-/Hetero-Junction Tunnel-FETs. *Pal, A.*, +, *TED Oct. 2020 4473-4481*
- A Compact Model of Analog RRAM With Device and Array Nonideal Effects for Neuromorphic Systems. *Liao, Y.*, +, *TED April 2020 1593-1599*
- A Comprehensive Investigation on Short-Circuit Oscillation of p-GaN HEMTs. *Xue, P.*, +, *TED Nov. 2020 4849-4857*
- A Comprehensive Physics-Based Current–Voltage SPICE Compact Model for 2-D-Material-Based Top-Contact Bottom-Gated Schottky-Barrier FETs. *Ahsan, S.A.*, +, *TED Nov. 2020 5188-5195*
- A Drain–Source Connection Technique: Thermal Resistance Measurement Method for GaN HEMTs Using TSEP at High Voltage. *Li, X.*, +, *TED Dec. 2020 5454-5459*
- A First Evaluation of Thick Oxide 3C-SiC MOS Capacitors Reliability. *Li, F.*, +, *TED Jan. 2020 237-242*
- A Method for Series-Resistance-Immune Extraction of Low-Frequency Noise Parameters in Nanoscale MOSFETs. *Tataridou, A.*, +, *TED Nov. 2020 4568-4572*
- A Novel Diode-Clamped Carrier Stored Trench IGBT With Improved Performances. *Yi, B.*, +, *TED Jan. 2020 243-248*
- A Novel Double-RESURF SOI-LIGBT With Improved V_{ON} - E_{OFF} Tradeoff and Low Saturation Current. *Hu, H.*, +, *TED March 2020 1059-1065*
- A Novel IGBT With High- k Dielectric Modulation Achieving Ultralow Turn-Off Loss. *Chen, W.*, +, *TED March 2020 1066-1070*
- A Novel Self-Controlled Double Trench Gate Snapback Free Reverse-Conducting IGBT With a Built-in Trench Barrier Diode. *Liu, Z.*, +, *TED April 2020 1705-1711*
- A Novel Ultralow $R_{ON,sp}$ Triple RESURF LDMOS With Sandwich n-p-n Layer. *Qiao, M.*, +, *TED Dec. 2020 5605-5612*
- A Parametric Technique for Trap Characterization in AlGaIn/GaN HEMTs. *Duffy, S.J.*, +, *TED May 2020 1924-1930*
- A Physical-Based Analytical Model for the Kink Current of Polycrystalline Silicon TFTs. *Chen, Y.*, +, *TED June 2020 2359-2364*
- A Physics-Based Compact Model for Ultrathin Black Phosphorus FETs—Part I: Effect of Contacts, Temperature, Ambipolarity, and Traps. *Yarmoghaddam, E.*, +, *TED Jan. 2020 389-396*
- A Physics-Based Compact Model for Ultrathin Black Phosphorus FETs—Part II: Model Validation Against Numerical and Experimental Data. *Yarmoghaddam, E.*, +, *TED Jan. 2020 397-405*
- A Predictive 3-D Source/Drain Resistance Compact Model and the Impact on 7 nm and Scaled FinFETs. *Wu, T.*, +, *TED June 2020 2255-2262*
- A Review of Hot Carrier Degradation in n-Channel MOSFETs—Part II: Technology Scaling. *Mahapatra, S.*, +, *TED July 2020 2672-2681*
- A Theoretical Study of Multidomain Ferroelectric Switching Dynamics With a Physics-Based SPICE Circuit Model for Phase-Field Simulations. *Hsu, C.*, +, *TED July 2020 2952-2959*
- A Trench-Field-Plate High-Voltage Power MOSFET. *Xiao, C.*, +, *TED June 2020 2482-2488*
- A Vertical Combo Spacer to Optimize Electrothermal Characteristics of 7-nm Nanosheet Gate-All-Around Transistor. *Liu, R.*, +, *TED June 2020 2249-2254*
- Abnormal Hump Effect Induced by Hydrogen Diffusion During Self-Heating Stress in Top-Gate Amorphous InGaZnO TFTs. *Chen, H.*, +, *TED July 2020 2807-2811*
- Accurate Computation of IGBT Junction Temperature in PLECS. *Gorecki, P.*, +, *TED July 2020 2865-2871*

- Accurate Temperature Estimation for Each Gate of GaN HEMT With n-Gate Fingers. *Al-Saman, A.A.*, +, *TED Sept. 2020* 3577-3584
- Alternated Trench-Gate IGBT for Low Loss and Suppressing Negative Gate Capacitance. *Saito, W.*, +, *TED Aug. 2020* 3285-3290
- An Efficient Thermal Model for Multifinger SiGe HBTs Under Real Operating Condition. *Nidhin, K.*, +, *TED Nov. 2020* 5069-5075
- An Improved Behavior Model for IGBT Modules Driven by Datasheet and Measurement. *Jing, L.*, +, *TED Jan. 2020* 230-236
- An Improved Silicon-Controlled Rectifier (SCR) for Low-Voltage ESD Application. *Du, F.*, +, *TED Feb. 2020* 576-581
- An Iterative Surface Potential Algorithm Including Interface Traps for Compact Modeling of SiC-MOSFETs. *Albrecht, M.*, +, *TED March 2020* 855-862
- An ON-Resistance Model for Silicon Carbide Merged p-i-n Schottky (MPS) Diodes. *Du, Q.*, +, *TED Oct. 2020* 4033-4039
- Analysis and Modeling of Polarization Gradient Effect on Negative Capacitance FET. *Kao, M.*, +, *TED Oct. 2020* 4521-4525
- Analysis of DC, Channel Temperature, and RF Performance of *In Situ* SiN/AlGaIn-Sandwich-Barrier/GaN/Al_{0.05}GaN HEMTs. *Yang, L.*, +, *TED Oct. 2020* 4147-4151
- Analysis of MIS-HEMT Device Edge Behavior for GaN Technology Using New Differential Method. *Kammeugne, R.K.*, +, *TED Nov. 2020* 4649-4653
- Analysis of Surface Charge Effects and Edge Fringing Capacitance in Planar GaAs and GaN Schottky Barrier Diodes. *Orfao, B.*, +, *TED Sept. 2020* 3530-3535
- Analytical Current–Voltage Model for Double-Gate a-IGZO TFTs With Symmetric Structure for Above Threshold. *Hernandez-Barrios, Y.*, +, *TED May 2020* 1980-1986
- Analytical Drain Current and Capacitance Model for Amorphous InGaZnO TFTs Considering Temperature Characteristics. *He, H.*, +, *TED Sept. 2020* 3637-3644
- Analytical Model Developed for Precise Stress Estimation of Device Channel Within Advanced Planar MOSFET Architectures. *Lee, C.*, +, *TED April 2020* 1498-1505
- Analytical Model for Interface Traps-Dependent Back Bias Capability and Variability in Ultrathin Body and Box FDSOI MOSFETs. *Chen, W.*, +, *TED Nov. 2020* 4573-4577
- Analytical Model for Low-Frequency Noise in Junctionless Nanowire Transistors. *Trevisoli, R.*, +, *TED June 2020* 2536-2543
- Analytical Modeling of Double-Gate and Nanowire Junctionless ISFETs. *Yesayan, A.*, +, *TED March 2020* 1157-1164
- Analytical Modeling of Short-Channel Effects in MFIS Negative-Capacitance FET Including Quantum Confinement Effects. *Pandey, N.*, +, *TED Nov. 2020* 4757-4764
- Armchair Graphene Nanoribbon Gate-Controllable RTD With Boron Nitride Barriers. *Monfared, M.H.G.*, +, *TED Nov. 2020* 5209-5215
- Assessing the Performance of Novel Two-Dimensional Materials Transistors: First-Principles Based Approach. *Kim, B.*, +, *TED Feb. 2020* 463-468
- Assessing the Role of a Semiconductor's Anisotropic Permittivity in Hafnium Disulfide Monolayer Field-Effect Transistors. *Bennett, R.K.A.*, +, *TED June 2020* 2607-2613
- Augmentation and Assessment of a Universal FET $I-V$ Model for Simulating GaN HEMTs. *Dasari, P.*, +, *TED March 2020* 847-854
- Batch-Fabricated WSe₂-on-Sapphire Field-Effect Transistors Grown by Chemical Vapor Deposition. *Asghari Heidarlou, M.*, +, *TED April 2020* 1839-1844
- Bias Stress Instability in Multilayered MoS₂ Field-Effect Transistors Under Pulse-Mode Operation. *Seo, S.G.*, +, *TED April 2020* 1864-1872
- Bias-Dependent Electron Velocity Extracted From N-Polar GaN Deep Recess HEMTs. *Romanczyk, B.*, +, *TED April 2020* 1542-1546
- Bipolar AC (Bipac) Switch With Buried Layer for Specific AC Mains Applications. *Rizk, H.*, +, *TED June 2020* 2451-2456
- BSIM Compact Model of Quantum Confinement in Advanced Nanosheet FETs. *Dasgupta, A.*, +, *TED Feb. 2020* 730-737
- Characterization and Modeling of Hot Carrier Degradation in N-Channel Gate-All-Around Nanowire FETs. *Gupta, C.*, +, *TED Jan. 2020* 4-10
- Characterization and TCAD Modeling of Mixed-Mode Stress Induced by Impact Ionization in Scaled SiGe HBTs. *Zagni, N.*, +, *TED Nov. 2020* 4597-4601
- Charge Transport in Vertical GaN Schottky Barrier Diodes: A Refined Physical Model for Conductive Dislocations. *Chen, L.*, +, *TED March 2020* 841-846
- Charge-Based Compact Drain Current Modeling of InAs-OI-Si MOSFET Including Subband Energies and Band Nonparabolicity. *Maity, S.K.*, +, *TED June 2020* 2282-2289
- Charge-Based Compact Model of Gate Leakage Current for AlInN/GaN and AlGaIn/GaN HEMTs. *Debnath, A.*, +, *TED March 2020* 834-840
- Charge-Based Model for the Drain-Current Variability in Organic Thin-Film Transistors Due to Carrier-Number and Correlated-Mobility Fluctuation. *Nikolaou, A.*, +, *TED Nov. 2020* 4667-4671
- Comments on “An Analytical Surface Potential Model Accounting for the Dual-Modulation Effects in Tunnel FETs”. *Shaker, A.*, *TED July 2020* 3014-3015
- Compact Modeling of Negative-Capacitance FDSOI FETs for Circuit Simulations. *Dabhi, C.K.*, +, *TED July 2020* 2710-2716
- Compact Modeling of Short-Channel Effects in Staggered Organic Thin-Film Transistors. *Pruefer, J.*, +, *TED Nov. 2020* 5082-5090
- Comparative Analysis of Hot Carrier Degradation (HCD) in 10-nm Node nMOS/pMOS FinFET Devices. *Kim, J.*, +, *TED Dec. 2020* 5396-5402
- Comparative Analysis of IGBT Parameters Variation Under Different Accelerated Aging Tests. *Mohamed Sathik, M.H.*, +, *TED March 2020* 1098-1105
- Computational Study of p-n Carbon Nanotube Tunnel Field-Effect Transistor. *Tamersit, K.*, *TED Feb. 2020* 704-710
- Consistent Surface-Potential-Based Modeling of Drain and Gate Currents in AlGaIn/GaN HEMTs. *Albahrani, S.A.*, +, *TED Feb. 2020* 455-462
- Controlling the Effective Channel Thickness of Junctionless Transistors by Substrate Bias. *Jeon, D.*, +, *TED Nov. 2020* 4736-4740
- Deep-Recessed β -Ga₂O₃ Delta-Doped Field-Effect Transistors With *In Situ* Epitaxial Passivation. *Joishi, C.*, +, *TED Nov. 2020* 4813-4819
- Density-of-States-Based Physical Model for Ink-Jet Printed Thiophene Polymeric TFTs. *Lee, J.*, +, *TED Jan. 2020* 283-288
- Design and Fabrication Approaches of 400–600 V 4H-SiC Lateral MOSFETs for Emerging Power ICs Application. *Yun, N.*, +, *TED Nov. 2020* 5005-5011
- Design and Investigation of Split-Gate MoTe₂-Based FET as Single Transistor AND Gate Using Nonequilibrium Green's Function. *Kumar, P.*, +, *TED Nov. 2020* 5221-5228
- Design and Simulation of Steep-Slope Silicon Cold Source FETs With Effective Carrier Distribution Model. *Gan, W.*, +, *TED June 2020* 2243-2248
- Design Considerations for Si- and Ge-Stacked Nanosheet pMOSFETs Based on Quantum Transport Simulations. *Zhang, S.*, +, *TED Jan. 2020* 26-32
- Design of a β -Ga₂O₃ Schottky Barrier Diode With p-Type III-Nitride Guard Ring for Enhanced Breakdown. *Roy, S.*, +, *TED Nov. 2020* 4842-4848
- Design of On-Wafer TRL Calibration Kit for InP Technologies Characterization up to 500 GHz. *Deng, M.*, +, *TED Dec. 2020* 5441-5447
- Design Optimization Techniques in Nanosheet Transistor for RF Applications. *Kushwaha, P.*, +, *TED Oct. 2020* 4515-4520
- Designing Beveled Edge Termination in GaN Vertical p-i-n Diode-Bevel Angle, Doping, and Passivation. *Zeng, K.*, +, *TED June 2020* 2457-2462
- Developing 13-kV 4H-SiC MOSFETs: Significance of Implant Straggle, Channel Design, and MOS Process on Static Performance. *Yun, N.*, +, *TED Oct. 2020* 4346-4353
- Device and Circuit-Level Assessment of GaSb/Si Heterojunction Vertical Tunnel-FET for Low-Power Applications. *Tripathy, M.R.*, +, *TED March 2020* 1285-1292
- Distinct Failure Modes of AlGaIn/GaN HEMTs Under ESD Conditions. *Shankar, B.*, +, *TED April 2020* 1567-1574
- Double-Gate Field-Effect Diode: A Novel Device for Improving Digital-and-Analog Performance. *Hashemi, S.A.*, +, *TED Jan. 2020* 18-25
- Drain-Erase Scheme in Ferroelectric Field Effect Transistor—Part II: 3-D-NAND Architecture for In-Memory Computing. *Wang, P.*, +, *TED March 2020* 962-967

- Dynamic C_{GD} and dV/dt in Superjunction MOSFETs. Kang, H., +, *TED April 2020 1523-1529*
- Edge Termination for III-Nitride Vertical Power Devices Using Polarization Engineering. Peart, M.R., +, *TED Feb. 2020 571-575*
- Effect of Charge Partitioning on IM3 Prediction in SOI-LDMOS Transistors. Gupta, S., +, *TED Feb. 2020 606-613*
- Effect of Two-Step Annealing on High Stability of a-IGZO Thin-Film Transistor. Peng, C., +, *TED Oct. 2020 4262-4268*
- Effects of Interface Traps and Self-Heating on the Performance of GAA GaN Vertical Nanowire MOSFET. Thingujam, T., +, *TED March 2020 816-821*
- Effects of Redundant Electrode Width on Stability of a-InGaZnO Thin-Film Transistors Under Hot-Carrier Stress. Lin, D., +, *TED June 2020 2372-2375*
- Effects of Self-Heating on f_T and f_{max} Performance of Graphene Field-Effect Transistors. Bonmann, M., +, *TED March 2020 1277-1284*
- Efficiency Enhancement of Perovskite Solar Cells Using Heterojunction Bipolar Transistor Configuration. Wahid, S., +, *TED Feb. 2020 552-557*
- Electrical Compact Modeling of SiGe Phototransistor: Impact of the Distributed Nature on Dynamic Behavior. Bennour, A., +, *TED March 2020 1034-1040*
- Electrical Properties of Al_2O_3/ZnO Metal-Insulator-Semiconductor Capacitors. Zhang, Q., +, *TED Nov. 2020 5033-5038*
- Electro-Thermo-Mechanical Reliability of Recessed Barrier AlGaIn/GaN Schottky Diodes Under Pulse Switching Conditions. Shankar, B., +, *TED May 2020 2044-2051*
- Engineering Schemes for Bulk FinFET to Simultaneously Improve ESD/Latch-Up Behavior and Hot Carrier Reliability. Paul, M., +, *TED July 2020 2745-2751*
- Enhancement of Hot Spot Cooling by Capped Diamond Layer Deposition for Multifinger AlGaIn/GaN HEMTs. Zhang, H., +, *TED Jan. 2020 47-52*
- Equivalent DG Dimensions Concept for Compact Modeling of Short-Channel and Thin Body GAA MOSFETs Including Quantum Confinement. Yilmaz, K., +, *TED Dec. 2020 5381-5387*
- Evaluation of Dynamic Avalanche Performance in 1.2-kV MOS-Bipolar Devices. Luo, P., +, *TED Sept. 2020 3691-3697*
- Experimental Details of a Steep-Slope Ferroelectric InGaAs Tunnel-FET With High-Quality PZT and Modeling Insights in the Transient Polarization. Verhulst, A.S., +, *TED Jan. 2020 377-382*
- Experimental Observation and Modeling of the Impact of Traps on Static and Analog/HF Performance of Graphene Transistors. Pacheco-Sanchez, A., +, *TED Dec. 2020 5790-5796*
- Exploration of Negative Capacitance in Gate-All-Around Si Nanosheet Transistors. Sakib, F.I., +, *TED Nov. 2020 5236-5242*
- Extraction of the 4H-SiC/SiO₂ Barrier Height Over Temperature. Avino-Salvado, O., +, *TED Jan. 2020 63-68*
- Extreme Temperature Modeling of AlGaIn/GaN HEMTs. Albahrani, S.A., +, *TED Feb. 2020 430-437*
- Free Carrier Mobility, Series Resistance, and Threshold Voltage Extraction in Junction FETs. Makris, N., +, *TED Nov. 2020 4658-4661*
- Frequency-Improved 4H-SiC IGBT With Multizone Collector Design. Tang, G., +, *TED Jan. 2020 198-203*
- Full-Band Quantum Transport of Heterojunction Electron Devices With Empirical Pseudopotentials. M'foukh, A., +, *TED Dec. 2020 5662-5668*
- Fundamental Aspects of Semiconductor Device Modeling Associated With Discrete Impurities: Drift-Diffusion Simulation Scheme. Sano, N., +, *TED Aug. 2020 3323-3328*
- Gate-Induced Drain Leakage in Negative Capacitance FinFETs. Gaidhane, A.D., +, *TED March 2020 802-809*
- Ge-GaAs-Ge Heterojunction MOSFETs for Mixed-Signal Applications. Mech, B.C., +, *TED Sept. 2020 3585-3591*
- Geometric Modeling of Thermal Resistance in GaN HEMTs on Silicon. Gonzalez, B., +, *TED Dec. 2020 5408-5414*
- High-Frequency Switching Properties and Low Oxide Electric Field and Energy Loss in a Reverse-Channel 4H-SiC UMOFET. Shen, Z., +, *TED Oct. 2020 4046-4053*
- Highly Tunable High- Q Inversion-Mode MOS Varactor in the 1–325-GHz Band. Margalef-Rovira, M., +, *TED June 2020 2263-2269*
- Hot Carrier Effect in Self-Aligned In-Ga-Zn-O Thin-Film Transistors With Short Channel Length. On, N., +, *TED Dec. 2020 5544-5551*
- Hot-Electron Effects in AlGaIn/GaN HEMTs Under Semi-ON DC Stress. Minetto, A., +, *TED Nov. 2020 4602-4605*
- Hydrogen Diffusion and Threshold Voltage Shifts in Top-Gate Amorphous InGaZnO Thin-Film Transistors. Chen, H., +, *TED Aug. 2020 3123-3128*
- Impact of AlInN Back-Barrier Over AlGaIn/GaN MOS-HEMT With HfO₂ Dielectric Using Cubic Spline Interpolation Technique. Sandeep, V., +, *TED Sept. 2020 3558-3563*
- Impact of Body Thickness and Scattering on III-V Triple Heterojunction TFET Modeled With Atomistic Mode-Space Approximation. Chen, C., +, *TED Aug. 2020 3478-3485*
- Impact of Charges at Ferroelectric/Interlayer Interface on Depolarization Field of Ferroelectric FET With Metal/Ferroelectric/Interlayer/Si Gate-Stack. Wang, X., +, *TED Oct. 2020 4500-4506*
- Impact of Gate Size on Abnormal Current Rise Under an Electric Field in Organic Thin-Film Transistors. Chen, H., +, *TED March 2020 1143-1148*
- Impact of Gate-Source/Drain Underlap on the Performance of Monolayer SiC Schottky-Barrier Field-Effect Transistor. Xie, H., +, *TED Oct. 2020 4130-4135*
- Impact of Hot Carrier Aging on the Performance of Triple-Gate Junctionless MOSFETs. Oproglidis, T.A., +, *TED Feb. 2020 424-429*
- Impact of Hot-Carrier Degradation on Drain-Induced Barrier Lowering in Multifin SOI n-Channel FinFETs With Self-Heating. Gupta, C., +, *TED May 2020 2208-2212*
- Impact of Switching Voltage on Complementary Steep-Slope Tunnel Field Effect Transistor Circuits. Kato, K., +, *TED Sept. 2020 3876-3882*
- Improved T_{MAX} Estimation in GaN HEMTs Using an Equivalent Hot Point Approximation. Odabasi, O., +, *TED April 2020 1553-1559*
- Inflection Phenomenon in Cryogenic MOSFET Behavior. Beckers, A., +, *TED March 2020 1357-1360*
- Insight into Buffer Trap-Induced Current Saturation and Current Collapse in GaN RF Heterojunction Field-Effect Transistors. Tripathi, D.C., +, *TED Dec. 2020 5460-5465*
- Investigating Ferroelectric Minor Loop Dynamics and History Effect—Part I: Device Characterization. Wang, P., +, *TED Sept. 2020 3592-3597*
- Investigating Ferroelectric Minor Loop Dynamics and History Effect—Part II: Physical Modeling and Impact on Neural Network Training. Wang, P., +, *TED Sept. 2020 3598-3604*
- Investigating the Failure Mechanism of Short-Circuit Tests in 1.2-kV SiC JBS-Integrated MOSFETs. Zhang, Y., +, *TED Oct. 2020 4027-4032*
- Investigating Transient Characteristics of Volatile Hysteresis and Self-Heating of PrMnO₃-Based RRAM. Sakhuja, J., +, *TED Dec. 2020 5520-5525*
- Investigation of Electrical Characteristic Behavior Induced by Channel-Release Process in Stacked Nanosheet Gate-All-Around MOSFETs. Kim, S., +, *TED June 2020 2648-2652*
- Investigation of Self-Heating Effects in Vacuum Gate Dielectric Gate-all-Around Vertically Stacked Silicon Nanowire Field Effect Transistors. Su, Y., +, *TED Oct. 2020 4085-4091*
- Investigation of Switching Time in GaN/AlN Resonant Tunneling Diodes by Experiments and P-SPICE Models. Zhang, W., +, *TED Jan. 2020 75-79*
- Investigation on the Effect of Gate Dielectric and Other Device Parameters on Digital Performance of Silicene Nanoribbon Tunnel FET. Singh, N.K., +, *TED July 2020 2966-2973*
- Investigations on Averaging Mechanisms of Virtual Junction Temperature Determined by $V_{CE}(T)$ Method for IGBTs. Chen, J., +, *TED March 2020 1106-1112*
- Lateral Profiling of Defects and Charges in Oxide Semiconductor Channel Thin-Film Transistors. Nguyen, M., +, *TED Oct. 2020 4234-4237*
- Low Thermal Budget (<250 °C) Dual-Gate Amorphous Indium Tungsten Oxide (IWO) Thin-Film Transistor for Monolithic 3-D Integration. Chakraborty, W., +, *TED Dec. 2020 5336-5342*
- Low-Frequency Noise Characteristics Under the OFF-State Stress. Lee, G., +, *TED Oct. 2020 4366-4371*
- Low-Frequency Noise Parameter Extraction Method for Single-Layer Graphene FETs. Mavredakis, N., +, *TED May 2020 2093-2099*

- Modeling and Analysis of Normally-OFF p-GaN Gate AlGaN/GaN HEMT as an ON-Chip Capacitor. *Abdulsalam, A.*, +, *TED Sept. 2020 3536-3540*
- Modeling Bias Dependence of Self-Heating in GaN HEMTs Using Two Heat Sources. *Chen, X.*, +, *TED Aug. 2020 3082-3087*
- Modeling Field Effect in Black Silicon and Its Impact on Device Performance. *Heinonen, J.*, +, *TED April 2020 1645-1652*
- Modeling of Both Arrhenius and Non-Arrhenius Temperature-Dependent Drain Current for Organic Thin-Film Transistors. *He, H.*, +, *TED Nov. 2020 5091-5096*
- Modeling of Current Mismatch and $1/f$ Noise for Halo-Implanted Drain-Extended MOSFETs. *Gupta, C.*, +, *TED Nov. 2020 4794-4801*
- Modeling of Enhancement-Mode GaN-GIT for High-Power and High-Temperature Application. *Shamsir, S.*, +, *TED Feb. 2020 588-594*
- Modeling of Short-Channel Effects in GaN HEMTs. *Allaei, M.*, +, *TED Aug. 2020 3088-3094*
- Modeling of the Vertical Leakage Current in AlN/Si Heterojunctions for GaN Power Applications. *Borga, M.*, +, *TED Feb. 2020 595-599*
- Modeling the Current–Voltage Characteristics of $\text{Ge}_{1-x}\text{Sn}_x$ Electron–Hole Bilayer TFET With Various Compositions. *Wisniewski, P.*, +, *TED July 2020 2738-2744*
- Modeling the Influence of the Acceptor-Type Trap on the 2DEG Density for GaN MIS-HEMTs. *Shi, Y.*, +, *TED June 2020 2290-2296*
- Modeling the Key Material Properties of Germanium for Device Simulation in Cryogenic Environments. *Bradley, L.J.*, +, *TED Oct. 2020 4099-4104*
- Monolayer MoSe_2 -Based Tunneling Field Effect Transistor for Ultrasensitive Strain Sensing. *Dubey, P.K.*, +, *TED May 2020 2140-2146*
- Monte Carlo Comparison of n-Type and p-Type Nanosheets With FinFETs: Effect of the Number of Sheets. *Bufler, F.M.*, +, *TED Nov. 2020 4701-4704*
- MOSFETs' Electrical Performance in the 160-nm BCD Technology Process With the Diamond Layout Shape. *Barri, D.*, +, *TED Aug. 2020 3270-3277*
- Multidomain Negative Capacitance Effect in P(VDF-TrFE) Ferroelectric Capacitor and Passive Voltage Amplification. *Singh, K.J.*, +, *TED Nov. 2020 4696-4700*
- N+ Pocket-Doped Vertical TFET for Enhanced Sensitivity in Biosensing Applications: Modeling and Simulation. *Devi, W.V.*, +, *TED May 2020 2133-2139*
- N-Buffer Design for Silicon-Based Power Diode Targeting High Dynamic Robustness and High Operating Temperature Over 448 K. *Nakamura, K.*, +, *TED June 2020 2437-2444*
- Near-Interface Trap Model for the Low Temperature Conductance Signal in SiC MOS Capacitors With Nitrided Gate Oxides. *Nicholls, J.R.*, +, *TED Sept. 2020 3722-3728*
- New C^∞ Functions for Drain–Source Voltage Clamping in Transistor Modeling. *Xia, K.*, *TED April 2020 1764-1768*
- New Strained LDMOS With Ultralow ON-Resistance by $\text{Si}_{1-y}\text{C}_y$ Source Stressor for About 20 V Low-Voltage Applications. *Li, M.*, +, *TED Nov. 2020 4998-5004*
- Non-Quasi-Static Effects in Graphene Field-Effect Transistors Under High-Frequency Operation. *Pasadas, F.*, +, *TED May 2020 2188-2196*
- Novel Drain-Connected Field Plate GaN HEMT Designs for Improved $V_{\text{BD}}\text{--}R_{\text{ON}}$ Tradeoff and RF PA Performance. *Soni, A.*, +, *TED April 2020 1718-1725*
- Novel Reconfigurable Field-Effect Transistor With Asymmetric Spacer Engineering at Drain Side. *Yao, Y.*, +, *TED Feb. 2020 751-757*
- Numerical Solutions for Electric Field Lines and Breakdown Voltages in Superjunction-Like Power Devices. *Huang, H.*, +, *TED Sept. 2020 3898-3902*
- On the Trap Locations in Bulk FinFETs After Hot Carrier Degradation (HCD). *Yu, Z.*, +, *TED July 2020 3005-3009*
- Opportunities in Device Scaling for 3-nm Node and Beyond: FinFET Versus GAA-FET Versus UFET. *Das, U.K.*, +, *TED June 2020 2633-2638*
- Optimal Ferroelectric Parameters for Negative Capacitance Field-Effect Transistors Based on Full-Chip Implementations—Part II: Scaling of the Supply Voltage. *Pentapati, S.*, +, *TED Jan. 2020 371-376*
- Optimization and Comparison of Drift Region Specific ON-Resistance for Vertical Power Hk MOSFETs and SJ MOSFETs With Identical Aspect Ratio. *Huang, H.*, +, *TED June 2020 2463-2470*
- Optimized Design of Carrier Injection Terminal for Reliable Low-Temperature Poly-Si TFTs Under Dynamic Hot-Carrier Stress. *Chen, L.*, +, *TED May 2020 1987-1992*
- p-Channel TFET Operation of Bilayer Structures With Type-II Heterotunneling Junction of Oxide- and Group-IV Semiconductors. *Kato, K.*, +, *TED April 2020 1880-1886*
- Parameter Extraction and Compact Modeling of OTFTs From 150 K to 350 K. *Cortes-Ordonez, H.*, +, *TED Dec. 2020 5685-5692*
- Performance and Low-Frequency Noise of 22-nm FDSOI Down to 4.2 K for Cryogenic Applications. *Cardoso Paz, B.*, +, *TED Nov. 2020 4563-4567*
- Physical Insights Into the ESD Behavior of Drain Extended FinFETs (DeFinFETs) and Unique Current Filament Dynamics. *Kumar, B.S.*, +, *TED July 2020 2717-2724*
- Physically Consistent Method for Calculating Trap-Assisted-Tunneling Current Applied to Line Tunneling Field-Effect Transistor. *Najam, F.*, +, *TED May 2020 2106-2112*
- Quantitative Characterization of Interface Traps in Ferroelectric/Dielectric Stack Using Conductance Method. *Qu, Y.*, +, *TED Dec. 2020 5315-5321*
- Quick Design of a Superjunction Considering Charge Imbalance Due to Process Variations. *Akshay, K.*, +, *TED Aug. 2020 3024-3029*
- Realistic Modeling of MoS_2 Piezoelectric Transistor. *Alidoosty-Shahraki, M.*, +, *TED Aug. 2020 3459-3465*
- Reliability-Aware Statistical BSIM Compact Model Parameter Generation Methodology. *Ding, J.*, +, *TED Nov. 2020 4777-4783*
- Replacement Gate High-k/Metal Gate nMOSFETs Using a Self-Aligned Halo-Compensated Channel Implant. *Lee, Z.*, +, *TED June 2020 2232-2237*
- Resistive Analysis of Scattering-Dependent Electrical Transport in Single-Wall Carbon-Nanotube Networks. *Tripathy, S.*, +, *TED Dec. 2020 5676-5684*
- RESURF n-LDMOS Transistor for Advanced Integrated Circuits in 4H-SiC. *WeiBe, J.*, +, *TED Aug. 2020 3278-3284*
- RF Performance Projections of Negative-Capacitance FETs: f_t , f_{max} , and $g_{\text{m}}/I_{\text{D}}$. *Wang, J.K.*, +, *TED Aug. 2020 3442-3450*
- Self-Heating Characterization of $\beta\text{-Ga}_2\text{O}_3$ Thin-Channel MOSFETs by Pulsed $I\text{--}V$ and Raman Nanothermography. *Blumenschein, N.A.*, +, *TED Jan. 2020 204-211*
- Simulation Study of a Thyristor Conduction-Insulated Gate Bipolar Transistor (TC-IGBT) With a p-n-p Base and an n-p-n Collector for Reducing Turn-Off Loss. *Jiang, M.*, +, *TED July 2020 2854-2858*
- Simulation Study on the Optimization and Scaling Behavior of LDMOS Transistors for Low-Voltage Power Applications. *Saadat, A.*, +, *TED Nov. 2020 4990-4997*
- Simulation-Based Ultralow Energy and High-Speed LIF Neuron Using Silicon Bipolar Impact Ionization MOSFET for Spiking Neural Networks. *Kumar Kamal, A.*, +, *TED June 2020 2600-2606*
- Single-Event Burnout Hardening Method and Evaluation in SiC Power MOSFET Devices. *Bi, J.*, +, *TED Oct. 2020 4340-4345*
- Speed Up Quantum Transport Device Simulation on Ferroelectric Tunnel Junction With Machine Learning Methods. *Wu, T.*, +, *TED Nov. 2020 5229-5235*
- Static and Transient Simulation of 4H-SiC VDMOS Using Full-Band Monte Carlo Simulation That Includes Real-Space Treatment of the Coulomb Interactions. *Cheng, C.*, +, *TED Sept. 2020 3705-3710*
- Study on Degradation Mechanisms of Thermal Conductivity for Confined Nanochannel in Gate-All-Around Silicon Nanowire Field-Effect Transistors. *Lai, J.*, +, *TED Oct. 2020 4060-4066*
- Super Field Plate Technique That Can Provide Charge Balance Effect for Lateral Power Devices Without Occupying Drift Region. *Zhang, C.*, +, *TED May 2020 2218-2222*
- Superjunction IGBT With Conductivity Modulation Actively Controlled by Two Separate Driving Signals. *Wei, J.*, +, *TED Oct. 2020 4335-4339*
- Suppression of Edge Effect Induced by Positive Gate Bias Stress in Low-Temperature Polycrystalline Silicon TFTs With Channel Width Extension Over Source/Drain Regions. *Wang, Y.*, +, *TED Dec. 2020 5552-5556*

- Surface Potential-Based Analytical Modeling of Electrostatic and Transport Phenomena of GaN Nanowire Junctionless MOSFET. *Khan, M.I.*, +, *TED Sept. 2020 3568-3576*
- Surface-Potential-Based Compact Model for the Gate Current of p-GaN Gate HEMTs. *Wang, J.*, +, *TED Sept. 2020 3564-3567*
- Sustained Benefits of NCFETs Under Extreme Scaling to the End of the IRDS. *Cam, T.*, +, *TED Sept. 2020 3843-3851*
- Symmetric Source and Drain Voltage Clamping Scheme for Complete Source–Drain Symmetry in Field-Effect Transistor Modeling. *Xia, K.*, *TED Aug. 2020 3042-3048*
- Systematic Modeling of Electrostatics, Transport, and Statistical Variability Effects of Interface Traps in End-of-the-Roadmap III–V MOSFETs. *Zagni, N.*, +, *TED April 2020 1560-1566*
- TCAD Framework for HCD Kinetics in Low V_D Devices Spanning Full V_G/V_D Space. *Sharma, U.*, +, *TED Nov. 2020 4749-4756*
- TCAD Simulation Framework of Gas Desorption in CNT FET NO_2 Sensors. *Carapezzi, S.*, +, *TED Nov. 2020 4682-4686*
- TCAD Study of VLD Termination in Large-Area Power Devices Featuring a DLC Passivation. *Balestra, L.*, +, *TED Nov. 2020 4645-4648*
- Temperature Dependence of Analog Performance, Linearity, and Harmonic Distortion for a Ge-Source Tunnel FET. *Datta, E.*, +, *TED March 2020 810-815*
- Temperature Dependence of Conductivity Modulation in SiC Bipolar Junction Transistors. *Asada, S.*, +, *TED April 2020 1699-1704*
- The Effect of the Carrier Drift Velocity Saturation in High-Power Semiconductor Lasers at Ultrahigh Drive Currents. *Soboleva, O.S.*, +, *TED Nov. 2020 4977-4982*
- The Effects of Gate-Connected Field Plates on Hotspot Temperatures of AlGaIn/GaN HEMTs. *Dundar, C.*, +, *TED Jan. 2020 57-62*
- The New Structure and Analytical Model of a High-Voltage Interconnection Shielding Structure With High- k Dielectric Pillar. *Du, L.*, +, *TED April 2020 1745-1750*
- The Role of Oxide Traps Aligned With the Semiconductor Energy Gap in MOS Systems. *Caruso, E.*, +, *TED Oct. 2020 4372-4378*
- Theoretical Analysis of Ballistic Current Transport in Monolayer Black Arsenic MOSFETs. *Seo, J.E.*, +, *TED Feb. 2020 622-626*
- Theoretical Analysis of ON-State Performance Limit of 4H-SiC IGBT in Field-Stop Technology. *Luo, P.*, +, *TED Dec. 2020 5621-5627*
- Thermal Noise Models for Trigate Junctionless Transistors Including Substrate Bias Effects. *Gola, D.*, +, *TED Jan. 2020 263-269*
- Transcapacitances in EPFL HEMT Model. *Jazaeri, F.*, +, *TED Feb. 2020 758-762*
- Tri-Gated Hybrid Anode AlGaIn/GaN Power Diode With Intrinsic Low Turn-on Voltage and Ultralow Reverse Leakage Current. *Zhou, Q.*, +, *TED April 2020 1712-1717*
- Understanding γ -Ray Induced Instability in AlGaIn/GaN HEMTs Using a Physics-Based Compact Model. *Sharma, C.*, +, *TED March 2020 1126-1131*
- Understanding Short-Circuit Failure Mechanism of Double-Trench SiC Power MOSFETs. *Wei, J.*, +, *TED Dec. 2020 5593-5599*
- Using Superlattice Structure in the Source of GNR-FET to Improve Its Switching Performance. *Behtoee, B.*, +, *TED March 2020 1334-1339*
- Vertical P-TFET With a P-Type SiGe Pocket. *Li, W.*, +, *TED April 2020 1480-1484*
- Vertically Stacked Gate-All-Around Structured Tunneling-Based Ternary-CMOS. *Kim, S.*, +, *TED Sept. 2020 3889-3893*
- Semiconductor device noise**
- 1/f Noise in InAs/InAsSb Superlattice Photoconductors. *Ciura, L.*, +, *TED Aug. 2020 3205-3210*
- A Method for Series-Resistance-Immune Extraction of Low-Frequency Noise Parameters in Nanoscale MOSFETs. *Tataridou, A.*, +, *TED Nov. 2020 4568-4572*
- Alternated Trench-Gate IGBT for Low Loss and Suppressing Negative Gate Capacitance. *Saito, W.*, +, *TED Aug. 2020 3285-3290*
- Analytical Model for Low-Frequency Noise in Junctionless Nanowire Transistors. *Trevisoli, R.*, +, *TED June 2020 2536-2543*
- Batch-Fabricated WSe_2 -on-Sapphire Field-Effect Transistors Grown by Chemical Vapor Deposition. *Asghari Heidarlou, M.*, +, *TED April 2020 1839-1844*
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- How Can Si/Ge Core/Shell Nanowires Outperform Their Pure Material Counterparts?. Lv, Y., +, *TED March 2020 1327-1333*
- Impact of Charges at Ferroelectric/Interlayer Interface on Depolarization Field of Ferroelectric FET With Metal/Ferroelectric/Interlayer/Si Gate-Stack. Wang, X., +, *TED Oct. 2020 4500-4506*
- Impact of Mechanical Stress on 3-D NAND Flash Current Conduction. Krav, A., +, *TED Nov. 2020 4891-4896*
- Impact of Width Scaling and Parasitic Series Resistance on the Performance of Silicene Nanoribbon MOSFETs. Poljak, M., *TED Nov. 2020 4705-4708*
- Impacts of Stress Voltage and Channel Length on Hot-Carrier Characteristics of Tunnel Field-Effect Thin-Film Transistor. Ma, W.C., +, *TED Nov. 2020 5243-5246*
- Improved Low-Voltage Sensing Performance in MIS(p) Tunnel Diodes by Oxide Thickening at the Gate Fringe. Lin, K., +, *TED April 2020 1845-1851*
- Improved the C - V Curve Shift, Trap State Responsiveness, and Dynamic R_{ON} of SBDs by the Composite 2-D-3-D Channel Heterostructure Under the OFF-State Stress. Yang, L., +, *TED Nov. 2020 4808-4812*
- Inadequacy of Third-Order Elastic Coefficients for Predicting Nonlinearity in Highly n-Type-Doped Silicon Resonators. Khazaeili, B., +, *TED Feb. 2020 614-621*
- Influence of Metal Gate Electrodes on Electrical Properties of Atomic-Layer-Deposited Al-Rich HfAlO/Ga₂O₃ MOSCAPs. Zhang, H., +, *TED April 2020 1730-1736*
- Influence of Substrate Resistivity on Porous Silicon Small-Signal RF Properties. Godet, G., +, *TED Nov. 2020 4654-4657*
- Intrinsic Capabilities for Digital Switching of Silicene Nanoribbons With Edge Defects. Poljak, M., *TED Jan. 2020 354-359*
- Investigation of Defect Characteristics and Carrier Transport Mechanisms in GaN Layers With Different Carbon Doping Concentration. Wang, H., +, *TED Nov. 2020 4827-4833*
- Investigation of Electrical Characteristic Behavior Induced by Channel-Release Process in Stacked Nanosheet Gate-All-Around MOSFETs. Kim, S., +, *TED June 2020 2648-2652*
- Investigation of Self-Heating Effects in Vacuum Gate Dielectric Gate-all-Around Vertically Stacked Silicon Nanowire Field Effect Transistors. Su, Y., +, *TED Oct. 2020 4085-4091*
- Investigation of the Temperature Dependence of Hot-Carrier Degradation in Si MOSFETs Using Spectroscopic Charge Pumping. Ruch, B., +, *TED Oct. 2020 4092-4098*
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- Low Temperature SoIC Bonding and Stacking Technology for 12-/16-Hi High Bandwidth Memory (HBM). Chen, M.F., +, *TED Dec. 2020 5343-5348*
- Low-Frequency Noise Assessment of Vertically Stacked Si n-Channel Nanosheet FETs With Different Metal Gates. Oliveira, A., +, *TED Nov. 2020 4802-4807*
- Low-Frequency Noise Characteristics Under the OFF-State Stress. Lee, G., +, *TED Oct. 2020 4366-4371*
- Low-Frequency Noise Characterization of Germanium n-Channel FinFETs. de Oliveira, A.V., +, *TED July 2020 2872-2877*
- Low-Noise Si-JFETs Enhanced by Split-Channel Concept. Sturm-Rogon, L., +, *TED Nov. 2020 4789-4793*
- Modeling Field Effect in Black Silicon and Its Impact on Device Performance. Heinonen, J., +, *TED April 2020 1645-1652*
- Modeling of the Vertical Leakage Current in AlN/Si Heterojunctions for GaN Power Applications. Borgia, M., +, *TED Feb. 2020 595-599*
- Nanofabricated Low-Voltage Gated Si Field-Ionization Arrays. Rughoobur, G., +, *TED Aug. 2020 3378-3384*
- Non-Volatile Field-Effect Transistors Enabled by Oxygen Vacancy-Related Dipoles for Memory and Synapse Applications. Peng, Y., +, *TED Sept. 2020 3632-3636*
- Numerical Simulation of Thermal Conductivity of SiNW-SiGe_{0.3} Composite for Thermoelectric Applications. Lee, M., +, *TED May 2020 2088-2092*
- On Border Traps in Back-Side-Illuminated CMOS Image Sensor Oxides. Vici, A., +, *TED May 2020 2022-2027*
- On the Stability of Amorphous Silicon Temperature Sensors. Lovecchio, N., +, *TED Aug. 2020 3348-3354*
- On-Chip Fully Integrated Field Emission Arrays for High-Voltage MEMS Applications. Deka, N., +, *TED Sept. 2020 3753-3760*
- On-Chip Over-Voltage Protection Design Against Surge Events on the CC Pin of USB Type-C Interface. Ke, C., +, *TED July 2020 2702-2709*
- Optical Pixel Sensor Based on a-Si:H TFTs to Detect Combined Optical Signals for Multiuser Interactive Displays. Lin, C., +, *TED June 2020 2425-2431*
- Optimization of Ohmic Contact for AlGaIn/GaN HEMT on Low-Resistivity Silicon. Benakaprasad, B., +, *TED March 2020 863-868*
- Optimized Design of Carrier Injection Terminal for Reliable Low-Temperature Poly-Si TFTs Under Dynamic Hot-Carrier Stress. Chen, L., +, *TED May 2020 1987-1992*
- Optimized Substrate for Improved Performance of Stacked Nanosheet Field-Effect Transistor. Jegadheesan, V., +, *TED Oct. 2020 4079-4084*
- p-Diamond, Si, GaN, and InGaAs TeraFETs. Zhang, Y., +, *TED Nov. 2020 4858-4865*
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- Passivation of n- and p-Type Silicon Surfaces With Spray-Coated Sol-Gel Silicon Oxide Thin Film. Bhajipale, J., +, *TED Nov. 2020 5045-5052*
- Performance Evaluation and Device Physics Investigation of Negative-Capacitance MOSFETs Based on Ultrathin Body Silicon and Monolayer MoS₂. Luo, S., +, *TED Aug. 2020 3049-3055*
- Poly-Si Finlike Thin-Film Transistors With Various Wide Drain Designs for Radio Frequency and 3-D Integrated Circuits. Hu, H., +, *TED June 2020 2342-2345*
- Process Variation Analysis of Device Performance Using Virtual Fabrication: Methodology Demonstrated on a CMOS 14-nm FinFET Vehicle. Vincent, B., +, *TED Dec. 2020 5374-5380*
- Prospects for Wide Bandgap and Ultrawide Bandgap CMOS Devices. Bader, S.J., +, *TED Oct. 2020 4010-4020*
- Quantitative Analysis of High-Pressure Deuterium Annealing Effects on Vertically Stacked Gate-All-Around SONOS Memory. Yu, J., +, *TED Sept. 2020 3903-3907*
- Room Temperature Hydrogen Sensing Investigation of Zinc Oxide Schottky Thin-Film Transistors: Dependence on Film Thickness. Ghosh, S., +, *TED Dec. 2020 5701-5709*
- Sensitivity of Source/Drain Critical Dimension Variations for Sub-5-nm Node Fin and Nanosheet FETs. Yoon, J., +, *TED Jan. 2020 258-262*
- Si Nanowire With Integrated Space-Charge- Limited Conducted Schottky Junction for Enhancing Field Electron Emission and Its Gated Devices. Zeng, M., +, *TED Oct. 2020 4467-4472*
- Single Pulse Charge Pumping Measurements on GaN MOS-HEMTs: Fast and Reliable Extraction of Interface Traps Density. Alghamdi, S., +, *TED Feb. 2020 444-448*
- Stacking Switch to Achieve Low-Trigger and High-Holding-Voltage-Clamp Characteristics. He, L., +, *TED April 2020 1506-1510*
- Study on Degradation Mechanisms of Thermal Conductivity for Confined Nanochannel in Gate-All-Around Silicon Nanowire Field-Effect Transistors. Lai, J., +, *TED Oct. 2020 4060-4066*
- Study on Various Device Structures for Steep-Switching Silicon-on-Insulator Feedback Field-Effect Transistors. Lee, C., +, *TED April 2020 1852-1858*
- Suppression of Edge Effect Induced by Positive Gate Bias Stress in Low-Temperature Polycrystalline Silicon TFTs With Channel Width Extension Over Source/Drain Regions. Wang, Y., +, *TED Dec. 2020 5552-5556*
- Thermoelectric Property Requirements for On-Chip Cooling of Device Transients. Nimmagadda, L.A., +, *TED Sept. 2020 3716-3721*

- Transformable Junctionless Transistor (T-JLT). *Han, J.*, +, *TED June 2020 2639-2644*
- Variability Effects in Nanowire and Macaroni MOSFETs—Part I: Random Dopant Fluctuations. *Spinelli, A.S.*, +, *TED April 2020 1485-1491*
- Wafer-Scale Fabricated On-Chip Thermionic Electron Sources With an Integrated Extraction Gate. *Wang, Y.*, +, *TED Nov. 2020 5132-5137*
- Wafer-Scale Si-GaN Monolithic Integrated E-Mode Cascode FET Realized by Transfer Printing and Self-Aligned Etching Technology. *Zhang, J.*, +, *TED Aug. 2020 3304-3308*
- Silicon compounds**
- 1200-V 4H-SiC Merged p-i-n Schottky Diodes With High Avalanche Capability. *Liu, L.*, +, *TED Sept. 2020 3679-3684*
- 4H-SiC CMOS Transimpedance Amplifier of Gamma-Irradiation Resistance Over 1 MGy. *Masunaga, M.*, +, *TED Jan. 2020 224-229*
- 4H-SiC UMOSFET With an Electric Field Modulation Region Below P-Body. *Cheng, Y.*, +, *TED Aug. 2020 3298-3303*
- A 4H-SiC UV Phototransistor With Excellent Optical Gain Based on Controlled Potential Barrier. *Di Benedetto, L.*, +, *TED Jan. 2020 154-159*
- A First Evaluation of Thick Oxide 3C-SiC MOS Capacitors Reliability. *Li, F.*, +, *TED Jan. 2020 237-242*
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- A New Emission Mechanism for Island-Metal-Film-Based Electron Sources. *Zhan, F.*, +, *TED Nov. 2020 5119-5124*
- A Novel Confined Nitride-Trapping Layer Device for 3-D NAND Flash With Robust Retention Performances. *Fu, C.*, +, *TED March 2020 989-994*
- A Vertical Combo Spacer to Optimize Electrothermal Characteristics of 7-nm Nanosheet Gate-All-Around Transistor. *Liu, R.*, +, *TED June 2020 2249-2254*
- Advanced Low-Temperature-High-Pressure Hydrogen Treatment for Interface Defect Passivation in Si- and SiGe-Channel MOSCAPs. *Chen, K.*, +, *TED Dec. 2020 5403-5407*
- Advantage of SiO₂ Intermediate Layer on the Electron Injection for Ti/n-Al_{0.60}Ga_{0.40}N Structure. *Shao, H.*, +, *TED Sept. 2020 3548-3552*
- An Iterative Surface Potential Algorithm Including Interface Traps for Compact Modeling of SiC-MOSFETs. *Albrecht, M.*, +, *TED March 2020 855-862*
- An ON-Resistance Model for Silicon Carbide Merged p-i-n Schottky (MPS) Diodes. *Du, Q.*, +, *TED Oct. 2020 4033-4039*
- Analysis of DC, Channel Temperature, and RF Performance of *In Situ* SiN/AlGaN-Sandwich-Barrier/GaN/Al_{0.05}GaN HEMTs. *Yang, L.*, +, *TED Oct. 2020 4147-4151*
- Analyzing the Effects of Aluminum-Doped ZnO and Ag Layers for the Transparent Electrode Vertical PCSS. *Zheng, Z.*, +, *TED June 2020 2414-2417*
- Characterization and Extraction of Power Loop Stray Inductance With SiC Half-Bridge Power Module. *Liu, Y.*, +, *TED Oct. 2020 4040-4045*
- Characterization of Schottky Barrier Diodes on Heteroepitaxial Diamond on 3C-SiC/Si Substrates. *Murooka, T.*, +, *TED Jan. 2020 212-216*
- Characterizations of Electrolyte-Insulator-Semiconductor Sensors With Array Wells and a Stack-Sensing Membrane. *Chen, H.J.H.*, +, *TED Sept. 2020 3761-3766*
- Comparative Study of SiC Planar MOSFETs With Different p-Body Designs. *Ni, W.*, +, *TED March 2020 1071-1076*
- Comparison of 2.3-kV 4H-SiC Accumulation-Channel Planar Power MOSFETs Fabricated With Linear, Square, Hexagonal, and Octagonal Cell Topologies. *Agarwal, A.*, +, *TED Sept. 2020 3673-3678*
- Design and Fabrication Approaches of 400–600 V 4H-SiC Lateral MOSFETs for Emerging Power ICs Application. *Yun, N.*, +, *TED Nov. 2020 5005-5011*
- Developing 13-kV 4H-SiC MOSFETs: Significance of Implant Straggle, Channel Design, and MOS Process on Static Performance. *Yun, N.*, +, *TED Oct. 2020 4346-4353*
- Diode-Less SiC Power Module With Countermeasures Against Bipolar Degradation to Achieve Ultrahigh Power Density. *Ishigaki, T.*, +, *TED May 2020 2035-2043*
- Direct-Bandgap Electroluminescence From Germanium With Subband Engineering Utilizing a Metal-Oxide-Semiconductor Structure. *Xie, M.*, +, *TED May 2020 2016-2021*
- Edge Termination With Enhanced Field-Limiting Rings Insensitive to Surface Charge for High-Voltage SiC Power Devices. *Hirao, T.*, +, *TED July 2020 2850-2853*
- Effect of Gate-Oxide Degradation on Electrical Parameters of Silicon Carbide MOSFETs. *Karki, U.*, +, *TED June 2020 2544-2552*
- Electro-Optical Performance Study of 4H-SiC/Pd Schottky UV Photodetector Array for Space Applications. *Karanth, S.P.*, +, *TED Aug. 2020 3242-3249*
- Enhanced Ultraviolet Avalanche Photodiode With 640-nm-Thin Silicon Body Based on SOI Technology. *Alirezai, I.S.*, +, *TED Nov. 2020 4641-4644*
- Enhancement of Hot Spot Cooling by Capped Diamond Layer Deposition for Multifinger AlGaN/GaN HEMTs. *Zhang, H.*, +, *TED Jan. 2020 47-52*
- Estimating Junction Temperature of SiC MOSFET Using Its Drain Current During Turn-On Transient. *Du, M.*, +, *TED May 2020 1911-1918*
- Experimental Determination of Impact Ionization Coefficients Along $\langle 1120 \rangle$ in 4H-SiC. *Stefanakis, D.*, +, *TED Sept. 2020 3740-3744*
- Experimental Study on Short-Channel Effects in Double-Gate Silicon Carbide JFETs. *Kaneko, M.*, +, *TED Oct. 2020 4538-4540*
- Extraction of the 4H-SiC/SiO₂ Barrier Height Over Temperature. *Avino-Salvado, O.*, +, *TED Jan. 2020 63-68*
- Frequency-Improved 4H-SiC IGBT With Multizone Collector Design. *Tang, G.*, +, *TED Jan. 2020 198-203*
- GaN Vertical-Channel Junction Field-Effect Transistors With Regrown p-GaN by MOCVD. *Yang, C.*, +, *TED Oct. 2020 3972-3977*
- Gate Leakage Suppression and Breakdown Voltage Enhancement in p-GaN HEMTs Using Metal/Graphene Gates. *Zhou, G.*, +, *TED March 2020 875-880*
- Hetero-Interfacial Thermal Resistance Effects on Device Performance of Stacked Gate-All-Around Nanosheet FET. *Venkateswarlu, S.*, +, *TED Oct. 2020 4493-4499*
- High-Frequency Switching Properties and Low Oxide Electric Field and Energy Loss in a Reverse-Channel 4H-SiC UMOSFET. *Shen, Z.*, +, *TED Oct. 2020 4046-4053*
- High-Performance Ultrathin-Barrier AlGaN/GaN Hybrid Anode Diode With Al₂O₃ Gate Dielectric and *In Situ* Si₃N₄-Cap Passivation. *Zhu, L.*, +, *TED Oct. 2020 4136-4140*
- High-Quality CVD-MoS₂ Synthesized on Surface-Modified Al₂O₃ for High-Performance MoS₂ Field-Effect Transistors. *Song, X.*, +, *TED Nov. 2020 5196-5200*
- High-Resolution Thermoreflectance Imaging Investigation of Self-Heating in AlGaN/GaN HEMTs on Si, SiC, and Diamond Substrates. *Helou, A.E.*, +, *TED Dec. 2020 5415-5420*
- High-Voltage Drain-Extended FinFET With a High-*k* Dielectric Field Plate. *Kim, H.*, +, *TED March 2020 1077-1084*
- Hydrogen Impacts of PEALD InGaZnO TFTs Using SiO_x Gate Insulators Deposited by PECVD and PEALD. *Jeong, S.*, +, *TED Oct. 2020 4250-4255*
- Impact of Electrical Stress on Defect Generation in Thin GeO₂/Ge Gate Stacks Fabricated by Thermal Oxidation. *Yuan, S.*, +, *TED June 2020 2516-2521*
- Impact of Film Stress of Field-Plate Dielectric on Electric Characteristics of GaN-HEMTs. *Ando, Y.*, +, *TED Dec. 2020 5421-5426*
- Impact of Gate-Source/Drain Underlap on the Performance of Monolayer SiC Schottky-Barrier Field-Effect Transistor. *Xie, H.*, +, *TED Oct. 2020 4130-4135*
- Impact of Resistance on the Performance of Ultraviolet 4H-SiC Avalanche Photodiodes. *Zhou, X.*, +, *TED Aug. 2020 3250-3255*
- Impact of Varied Buffer Layer Designs on Single-Event Response of 1.2-kV SiC Power MOSFETs. *Lu, J.*, +, *TED Sept. 2020 3698-3704*
- Investigating the Failure Mechanism of Short-Circuit Tests in 1.2-kV SiC JBS-Integrated MOSFETs. *Zhang, Y.*, +, *TED Oct. 2020 4027-4032*
- Investigation of the Thermal Recovery From Reset Breakdown of a SiN_x-Based RRAM. *Hong, K.*, +, *TED April 2020 1600-1605*

- Investigations of SiC MOSFET Short-Circuit Failure Mechanisms Using Electrical, Thermal, and Mechanical Stress Analyses. Yao, K., +, *TED Oct. 2020 4328-4334*
- Low-Frequency Noise Assessment of Vertically Stacked Si n-Channel Nanosheet FETs With Different Metal Gates. Oliveira, A., +, *TED Nov. 2020 4802-4807*
- Near-Interface Trap Model for the Low Temperature Conductance Signal in SiC MOS Capacitors With Nitrided Gate Oxides. Nicholls, J.R., +, *TED Sept. 2020 3722-3728*
- New Strained LDMOS With Ultralow ON-Resistance by Si_{1-y}C_y Source Stressor for About 20 V Low-Voltage Applications. Li, M., +, *TED Nov. 2020 4998-5004*
- On Border Traps in Back-Side-Illuminated CMOS Image Sensor Oxides. Vici, A., +, *TED May 2020 2022-2027*
- On-Wafer Fast Evaluation of Failure Mechanism of 0.25- μ m AlGaIn/GaN HEMTs: Evidence of Sidewall Indiffusion. Rzin, M., +, *TED July 2020 2765-2770*
- Passivation of n- and p-Type Silicon Surfaces With Spray-Coated Sol-Gel Silicon Oxide Thin Film. Bhajipale, J., +, *TED Nov. 2020 5045-5052*
- Physical Insights Into the Mobility Enhancement in Amorphous InGaZnO Thin-Film Transistor by SiO₂ Passivation Layer. Zhang, P., +, *TED June 2020 2352-2358*
- Quantitative Analysis of High-Pressure Deuterium Annealing Effects on Vertically Stacked Gate-All-Around SONOS Memory. Yu, J., +, *TED Sept. 2020 3903-3907*
- Quick Design of a Superjunction Considering Charge Imbalance Due to Process Variations. Akshay, K., +, *TED Aug. 2020 3024-3029*
- RESURF n-LDMOS Transistor for Advanced Integrated Circuits in 4H-SiC. WeiBe, J., +, *TED Aug. 2020 3278-3284*
- Room Temperature Hydrogen Sensing Investigation of Zinc Oxide Schottky Thin-Film Transistors: Dependence on Film Thickness. Ghosh, S., +, *TED Dec. 2020 5701-5709*
- SiC Double-Trench MOSFETs With Embedded MOS-Channel Diode. Zhou, X., +, *TED Feb. 2020 582-587*
- SiC Trench MOSFET With Reduced Switching Loss and Increased Short-Circuit Capability. Yang, T., +, *TED Sept. 2020 3685-3690*
- Single-Event Burnout Hardening Method and Evaluation in SiC Power MOSFET Devices. Bi, J., +, *TED Oct. 2020 4340-4345*
- Size-Dependent Photoresponse of Germanium Nanocrystals-Metal Oxide Semiconductor Photodetector. Dhyani, V., +, *TED Feb. 2020 558-565*
- Spatially Resolved Diffusion of Aluminum in 4H-SiC During Postimplantation Annealing. Muting, J., +, *TED Oct. 2020 4360-4365*
- Static and Transient Simulation of 4H-SiC VDMOS Using Full-Band Monte Carlo Simulation That Includes Real-Space Treatment of the Coulomb Interactions. Cheng, C., +, *TED Sept. 2020 3705-3710*
- Suppression of the Short-Channel Effect in Dehydrogenated Elevated-Metal Metal- Oxide (EMMO) Thin-Film Transistors. Lv, N., +, *TED July 2020 3001-3004*
- Synthesis of Silica-Coated Cs₄PbBr₆ and Cs₄Pb(Br_{0.4}I_{0.6})₆ Quantum Dots With Long Lifetime and Enhancement in Quantum Efficiency for WLEDs Applications: Lightings With High CRI and Displays With Wide Color Gamut. Lin, Y., +, *TED June 2020 2386-2392*
- TCAD Study of VLD Termination in Large-Area Power Devices Featuring a DLC Passivation. Balestra, L., +, *TED Nov. 2020 4645-4648*
- Temperature Dependence of Conductivity Modulation in SiC Bipolar Junction Transistors. Asada, S., +, *TED April 2020 1699-1704*
- The Effects of Gate-Connected Field Plates on Hotspot Temperatures of AlGaIn/GaN HEMTs. Dundar, C., +, *TED Jan. 2020 57-62*
- Theoretical Analysis of ON-State Performance Limit of 4H-SiC IGBT in Field-Stop Technology. Luo, P., +, *TED Dec. 2020 5621-5627*
- Tunneling Current in 4H-SiC p-n Junction Diodes. Kaneko, M., +, *TED Aug. 2020 3329-3334*
- Ultralow- k Dielectric With Structured Pores for Interconnect Delay Reduction. Xiao, Y., +, *TED May 2020 2071-2075*
- Understanding Short-Circuit Failure Mechanism of Double-Trench SiC Power MOSFETs. Wei, J., +, *TED Dec. 2020 5593-5599*
- Silicon germanium**
Corrections to “Optimization and Scaling of Ge-Pocket TFET” [Dec 18 5289-5294]. Li, W., *TED March 2020 1361*
- Silicon radiation detectors**
Studies on Small Charge Packet Transport in High-Resistivity Fully Depleted CCDs. Haro, M.S., +, *TED May 2020 1993-2000*
- Silicon-on-insulator**
A Micromachined Resonant Differential Pressure Sensor. Li, Y., +, *TED Feb. 2020 640-645*
A Novel Double-RESURF SOI-LIGBT With Improved $V_{ON-E_{OFF}}$ Tradeoff and Low Saturation Current. Hu, H., +, *TED March 2020 1059-1065*
A Novel No Miller Plateau SOI-LIGBT With Low Saturation Current and Improved Switching Performance. Zhang, B., +, *TED May 2020 2066-2070*
Analysis of RF Inductive Effect in S-Parameters of Body Contact PD-SOI MOSFETs. Lee, K., +, *TED Oct. 2020 4054-4059*
Analytical Model for Interface Traps-Dependent Back Bias Capability and Variability in Ultrathin Body and Box FDSOI MOSFETs. Chen, W., +, *TED Nov. 2020 4573-4577*
Band-to-Band Tunneling Based Ultra-Energy-Efficient Silicon Neuron. Chavan, T., +, *TED June 2020 2614-2620*
Characterization and Modeling of Hot Carrier Degradation in N-Channel Gate-All-Around Nanowire FETs. Gupta, C., +, *TED Jan. 2020 4-10*
Compact Modeling of Negative-Capacitance FDSOI FETs for Circuit Simulations. Dabhi, C.K., +, *TED July 2020 2710-2716*
Cryogenic Operation of Thin-Film FDSOI nMOS Transistors: The Effect of Back Bias on Drain Current and Transconductance. Casse, M., +, *TED Nov. 2020 4636-4640*
Deep-Depletion Effect in SOI Substrates and its Application in Photodetectors With Tunable Responsivity and Detection Range. Arsalan, M., +, *TED Aug. 2020 3256-3262*
Drain-Erase Scheme in Ferroelectric Field-Effect Transistor—Part I: Device Characterization. Wang, P., +, *TED March 2020 955-961*
Effect of Charge Partitioning on IM3 Prediction in SOI-LDMOS Transistors. Gupta, S., +, *TED Feb. 2020 606-613*
Effects of Scaling on Analog FoMs of UTBB FD-SOI MOS Transistors: A Detailed Analysis. Bhoir, M.S., +, *TED Aug. 2020 3035-3041*
Enhanced Ultraviolet Avalanche Photodiode With 640-nm-Thin Silicon Body Based on SOI Technology. Alirezai, I.S., +, *TED Nov. 2020 4641-4644*
Equivalent DG Dimensions Concept for Compact Modeling of Short-Channel and Thin Body GAA MOSFETs Including Quantum Confinement. Yilmaz, K., +, *TED Dec. 2020 5381-5387*
Hall Effect Measurements in Rotating Magnetic Field on Sub-30-nm Silicon Nanowires Fabricated by a Top-Down Approach. Verma, A., +, *TED Nov. 2020 5201-5208*
Impact of High- k Gate Dielectric on Self-Heating Effects in PiFETs Structure. Belkhiria, M., +, *TED Sept. 2020 3522-3529*
Impact of Hot-Carrier Degradation on Drain-Induced Barrier Lowering in Multifin SOI n-Channel FinFETs With Self-Heating. Gupta, C., +, *TED May 2020 2208-2212*
Modeling of High- Q Conical Inductors and MOM Capacitors for Millimeter-Wave Applications. Jeyaraman, S., +, *TED Dec. 2020 5646-5652*
Optimized Substrate for Improved Performance of Stacked Nanosheet Field-Effect Transistor. Jegadheesan, V., +, *TED Oct. 2020 4079-4084*
Out-of-Equilibrium Body Potential Measurement on Silicon-on-Insulator With Deposited Metal Contacts. Alepidis, M., +, *TED Nov. 2020 4582-4586*
Performance and Low-Frequency Noise of 22-nm FDSOI Down to 4.2 K for Cryogenic Applications. Cardoso Paz, B., +, *TED Nov. 2020 4563-4567*
Simulation Study of a Novel Snapback Free Reverse-Conducting SOI-LIGBT With Embedded P-Type Schottky Barrier Diode. Yi, B., +, *TED May 2020 2058-2065*
Simulation-Based Ultralow Energy and High-Speed LIF Neuron Using Silicon Bipolar Impact Ionization MOSFET for Spiking Neural Networks. Kumar Kamal, A., +, *TED June 2020 2600-2606*

- Study on Various Device Structures for Steep-Switching Silicon-on-Insulator Feedback Field-Effect Transistors. *Lee, C.*, +, *TED April 2020 1852-1858*
- Silicones**
- Enhancing Luminous Efficiency of Quantum Dot-Based Chip-on-Board Light-Emitting Diodes Using Polystyrene Fiber Mats. *Liang, G.*, +, *TED Oct. 2020 4530-4533*
- Silver**
- A CMOS-MEMS Thermal-Piezoresistive Oscillator for Mass Sensing Applications. *Zope, A.A.*, +, *TED March 2020 1183-1191*
- A Lifetime Performance Analysis of LED Luminaires Under Real-Operation Profiles. *Padmasali, A.N.*, +, *TED Jan. 2020 146-153*
- Analyzing the Effects of Aluminum-Doped ZnO and Ag Layers for the Transparent Electrode Vertical PCSS. *Zheng, Z.*, +, *TED June 2020 2414-2417*
- Investigation on Photoanode Modified With TiO₂-ZnO-Ag Nanofibers in Dye-Sensitized Solar Cell Under Different Intensities of Illuminations. *Nien, Y.*, +, *TED Nov. 2020 4983-4989*
- Microcantilever Printed Back-to-Back ZnO Single-Nanowire Schottky Diodes. *Yadav, V.K.S.*, +, *TED Aug. 2020 3309-3314*
- Numerical Analysis of rGO/Silver-Nanowire- Based Single-Crystal Perovskite Solar Cell. *Pandey, S.K.*, +, *TED Oct. 2020 4321-4327*
- Study of GaN-Based Light-Emitting Diode (LED) With a Hybrid Surface Structure. *Chen, W.*, +, *TED Nov. 2020 4953-4957*
- The Effect of Torsional Bending on Reliability and Lifetime of Printed Silver Conductors. *Hannila, E.*, +, *TED June 2020 2522-2528*
- Ultralow Current Switching in Flexible Hybrid PVP:MoS₂/HfO_x Bilayer Devices. *Varun, I.*, +, *TED Aug. 2020 3472-3477*
- Silver alloys**
- Si Nanowire With Integrated Space-Charge- Limited Conducted Schottky Junction for Enhancing Field Electron Emission and Its Gated Devices. *Zeng, M.*, +, *TED Oct. 2020 4467-4472*
- Silver compounds**
- Encapsulated X-Ray Detector Enabled by All-Inorganic Lead-Free Perovskite Film With High Sensitivity and Low Detection Limit. *Zhang, H.*, +, *TED Aug. 2020 3191-3198*
- Sintering**
- Heat Dissipation Enhancement of Phosphor-Converted White Laser Diodes by Thermally Self-Managing Phosphor-in-Glass. *Peng, Y.*, +, *TED Oct. 2020 4288-4292*
- Influence of the Surface Tungsten Distribution on the Emission Properties of Barium Tungsten Cathode. *Shang, J.*, +, *TED June 2020 2580-2584*
- Skin**
- Low Operating Voltage Solution Processed (Li₂ZnO₂) Dielectric and (SnO₂) Channel-Based Medium Wave UV-B Phototransistor for Application in Phototherapy. *Singh, A.K.*, +, *TED May 2020 2028-2034*
- Matrix-Addressed Flexible Capacitive Pressure Sensor With Suppressed Crosstalk for Artificial Electronic Skin. *Chen, S.*, +, *TED July 2020 2940-2944*
- Skymions**
- Dynamic Skymion-Mediated Switching of Perpendicular MTJs: Feasibility Analysis of Scaling to 20 nm With Thermal Noise. *Rajib, M.M.*, +, *TED Sept. 2020 3883-3888*
- Thermal Brownian Motion of Skymion for True Random Number Generation. *Yao, Y.*, +, *TED June 2020 2553-2558*
- Sleep**
- Health Monitoring and Automatic Notification Device Based on Laser-Induced Graphene. *Huang, Y.*, +, *TED Oct. 2020 4488-4492*
- Slow wave structures**
- H- and E-Plane Loaded Slow Wave Structure for W-Band TWT. *Billa, L.R.*, +, *TED Jan. 2020 309-313*
- A Ka-Band Folded Waveguide Traveling Wave Tube With Lumped Resistance Metamaterial Absorber. *Bai, N.*, +, *TED March 2020 1248-1253*
- A High-Efficiency Ridged Magnetically Insulated Transmission Line Oscillator. *Xu, H.*, +, *TED Oct. 2020 4442-4446*
- A New Fabrication Method for Serpentine-Folded Waveguide Slow Wave Structure at W-Band. *Panigrahi, R.*, +, *TED March 2020 1198-1204*
- A Novel Chevron-Shape Double-Staggered Grating Waveguide Slow Wave Structure for Terahertz Traveling Wave Tubes. *Babaeihaseghobi, A.*, +, *TED Sept. 2020 3781-3787*
- A Novel Scheme for Gain and Power Enhancement of THz TWTs by Extended Interaction Cavities. *Shi, N.*, +, *TED Feb. 2020 667-672*
- An Active Transmission Matrix-Based Nonlinear Analysis for Folded Waveguide TWT. *Zhang, R.*, +, *TED March 2020 1205-1210*
- Design and Experimental Measurement of Input and Output Couplers for a 6–18-GHz High-Power Helix Traveling Wave Tube Amplifier. *Wu, G.*, +, *TED April 2020 1826-1831*
- Design and Simulation of Dual-Band Nonuniform Relativistic Backward Wave Oscillator Using a Bragg Structure as Its RF Circuit and Reflector-Cum-Mode Converter. *Ansari, M.A.*, +, *TED April 2020 1814-1818*
- Experimental Study on a Moderately Overmoded Ka-Band Cherenkov Oscillator Operating With Low Magnetic Field. *Li, S.*, +, *TED July 2020 2905-2911*
- Investigation of Double Tunnel Sine Waveguide Slow-Wave Structure for Terahertz Dual-Beam TWT. *Lu, Z.*, +, *TED May 2020 2176-2181*
- Numerical Computation of Dispersion Curves for Both Symmetric and Asymmetric Modes in Metal Coaxial Slow Wave Structures. *Chen, S.*, +, *TED Jan. 2020 322-327*
- Study on Wideband THz Backward Wave Oscillator Driven by Pseudospark-Sourced Sheet Electron Beam. *Zhang, J.*, +, *TED Aug. 2020 3395-3402*
- Suppression of High-Order Asymmetric Modes by Reflection Adjustment Method in Coaxial Slow Wave Structures. *Chen, S.*, +, *TED Dec. 2020 5771-5776*
- Theory, Simulation, and Analysis of the High-Frequency Characteristics for a Meander-Line Slow-Wave Structure Based on Field-Matching Methods With Dyadic Green's Function. *Wen, Z.*, +, *TED Feb. 2020 697-703*
- Wideband Rectangular TE₁₀ to TE_{m0} Mode Converters for Terahertz-Band High-Order Overmoded Planar Slow-Wave Structures. *Shu, G.*, +, *TED March 2020 1259-1265*
- Soft lithography**
- Characterizations of Electrolyte-Insulator-Semiconductor Sensors With Array Wells and a Stack-Sensing Membrane. *Chen, H.J.H.*, +, *TED Sept. 2020 3761-3766*
- PDMS-Based Microfluidic Glucose Biofuel Cell Integrated With Optimized Laser-Induced Flexible Graphene Bioelectrodes. *Rewatkar, P.*, +, *TED April 2020 1832-1838*
- Softening**
- Inadequacy of Third-Order Elastic Coefficients for Predicting Nonlinearity in Highly n-Type-Doped Silicon Resonators. *Khazaeili, B.*, +, *TED Feb. 2020 614-621*
- Sol-gel processing**
- Negative/Positive Electrocaloric Effect in Single-Layer Pb(Zr_xTi_{1-x})O₃ Thin Films for Solid-State Cooling Device. *Prasad Bag, S.*, +, *TED April 2020 1769-1775*
- Passivation of n- and p-Type Silicon Surfaces With Spray-Coated Sol-Gel Silicon Oxide Thin Film. *Bhajibale, J.*, +, *TED Nov. 2020 5045-5052*
- Solar cells**
- Ambient-Air-Processed Ambipolar Perovskite Phototransistor With High Photodetectivity. *Haque, F.*, +, *TED Aug. 2020 3215-3220*
- Analytical Performance Analysis of CdZnO/ZnO-Based Multiple Quantum Well Solar Cell. *Siddharth, G.*, +, *TED March 2020 1047-1051*
- Design Optimization of Photovoltaic Cell Stacking in a Triple-Well CMOS Process. *Hong, G.*, +, *TED June 2020 2381-2385*
- Design, Performance, and Defect Density Analysis of Efficient Eco-Friendly Perovskite Solar Cell. *Shubham, .*, +, *TED July 2020 2837-2843*
- Dilute Oxygen Alloys of ZnS as a Promising Toxic-Free Buffer Layer for Cu(In, Ga)Se₂ Thin-Film Solar Cells. *Alqahtani, S.M.*, +, *TED April 2020 1666-1673*
- Efficiency Enhancement of Perovskite Solar Cells Using Heterojunction Bipolar Transistor Configuration. *Wahid, S.*, +, *TED Feb. 2020 552-557*
- Ga_{0.84}In_{0.16}As_{0.14}Sb_{0.86}/InAs_{0.91}Sb_{0.09} Dual-Junction Device for Thermophotovoltaic Energy Conversion. *Fan, T.*, +, *TED Nov. 2020 4820-4826*
- Improved Design of a Thermophotovoltaic Device. *Liao, T.*, +, *TED Nov. 2020 4709-4712*

- Investigation of DIBS-Deposited CdZnO/ZnO-Based Multiple Quantum Well for Large-Area Photovoltaic Application. *Siddharth, G.*, +, *TED Dec. 2020 5587-5592*
- Numerical Analysis of rGO/Silver-Nanowire- Based Single-Crystal Perovskite Solar Cell. *Pandey, S.K.*, +, *TED Oct. 2020 4321-4327*
- Parametric Optimum Design and Performance Improvement of a Thermophotonic Cell. *Yang, Z.*, +, *TED June 2020 2376-2380*
- Passivation of n- and p-Type Silicon Surfaces With Spray-Coated Sol-Gel Silicon Oxide Thin Film. *Bhajibale, J.*, +, *TED Nov. 2020 5045-5052*
- Solar power stations**
- Enhanced Solar PV Power Generation Under PSCs Using Shade Dispersion. *Kumar, M.*, *TED Oct. 2020 4313-4320*
- Solenoids**
- Experimental Study on a Moderately Overmoded Ka-Band Cherenkov Oscillator Operating With Low Magnetic Field. *Li, S.*, +, *TED July 2020 2905-2911*
- High-Average-Power Second Harmonic W-Band Gyrotron With Room-Temperature Solenoid. *Pilossof, M.*, +, *TED April 2020 1804-1807*
- Solid electrolytes**
- ALD-Derived, Low-Density Alumina as Solid Electrolyte in Printed Low-Voltage FETs. *Neuper, F.J.*, +, *TED Sept. 2020 3828-3833*
- Effects of Charge Quantity Induced by Different Forming Methods in Solid Electrolyte GeSO-Based Resistance Switching Device With Copper Electrode. *Chen, P.*, +, *TED June 2020 2324-2328*
- Understanding of the Abrupt Resistive Transition in Different Types of Threshold Switching Devices From Materials Perspective. *Lee, S.*, +, *TED July 2020 2878-2883*
- Solid lasers**
- Superior Deep-Ultraviolet Source Pumped by an Electron Beam for NLOS Communication. *Kang, Y.*, +, *TED Aug. 2020 3391-3394*
- Solid state circuits**
- Editorial Special Section on ESSDERC. *Andrieu, F.*, +, *TED Nov. 2020 4558*
- Solid-state rectifiers**
- Design Strategies for Mesa-Type GaN-Based Schottky Barrier Diodes for Obtaining High Breakdown Voltage and Low Leakage Current. *Jia, X.*, +, *TED May 2020 1931-1938*
- Space charge**
- Accurate Modeling of Monotron Oscillations in Small- and Large-Signal Regimes. *Cai, J.*, +, *TED April 2020 1797-1803*
- Effect of Tapered Interelectrode Gap Region on Pseudospark-Sourced Electron Beam Emission. *Kumar, N.*, +, *TED March 2020 1211-1214*
- Physical Insights Into the ESD Behavior of Drain Extended FinFETs (DeFin-FETs) and Unique Current Filament Dynamics. *Kumar, B.S.*, +, *TED July 2020 2717-2724*
- Space vehicle electronics**
- Half-Select-Free Low-Power Dynamic Loop-Cutting Write Assist SRAM Cell for Space Applications. *Pal, S.*, +, *TED Jan. 2020 80-89*
- Space-charge-limited conduction**
- An Efficient All Cavity Axial Extraction Relativistic Magnetron With Virtual Cathode. *Cheng, R.*, +, *TED May 2020 2165-2169*
- Effect of Aluminum Doping on Performance of HfO_x-Based Flexible Resistive Memory Devices. *Paul, A.D.*, +, *TED Oct. 2020 4222-4227*
- Investigating Transient Characteristics of Volatile Hysteresis and Self-Heating of PrMnO₃-Based RRAM. *Sakhujia, J.*, +, *TED Dec. 2020 5520-5525*
- Reaction-Drift Model for Switching Transients in Pr_{0.7}Ca_{0.3}MnO₃-Based Resistive RAM. *Saraswat, V.*, +, *TED Sept. 2020 3610-3617*
- Sparks**
- A Multigap Multiaperture Pseudospark Switch and Its Performance Analysis for High-Voltage Applications. *Pal, U.N.*, +, *TED Dec. 2020 5600-5604*
- Effect of Tapered Interelectrode Gap Region on Pseudospark-Sourced Electron Beam Emission. *Kumar, N.*, +, *TED March 2020 1211-1214*
- Impact of Irregular Electrode Apertures in Multigap Pseudospark Discharge Geometries for the Generation of High Density and Energetic Electron Beams. *Varun, .*, +, *TED May 2020 2182-2187*
- PIC Simulation of Pseudospark Discharge-Based Plasma Cathode Electron Source for the Generation of High Current Density and Energetic Electron Beam. *Varun, .*, +, *TED April 2020 1793-1796*
- Study of a 0.35 THz Extended Interaction Oscillator Driven by a Pseudospark-Sourced Sheet Electron Beam. *Xie, J.*, +, *TED Feb. 2020 652-658*
- Study on Wideband THz Backward Wave Oscillator Driven by Pseudospark-Sourced Sheet Electron Beam. *Zhang, J.*, +, *TED Aug. 2020 3395-3402*
- Spatial variables measurement**
- Technological Sensor on Coupled Radial Spirals. *Pchelnikov, Y.N.*, +, *TED March 2020 1165-1170*
- Special issues and sections**
- Editorial Special Issue on “Memory Devices and Technologies for the Next Decade”. *Compagnoni, C.M.*, +, *TED April 2020 1369-1372*
- Editorial Special Section on ESSDERC. *Andrieu, F.*, +, *TED Nov. 2020 4558*
- Editorial Special Section on Papers From the 2020 VLSI Symposium. *Ghione, G.*, *TED Dec. 2020 5305*
- Special Issue: Ultra Wide Band Gap Semiconductors for Power Control and Conversion. *Fay, P.*, +, *TED Oct. 2020 3922-3924*
- Spectral line broadening**
- Spectral Characteristics of THz CW Clinotrons. *Ponomarenko, S.S.*, +, *TED Dec. 2020 5766-5770*
- SPICE**
- J_{sw} of 5.5 MA/cm² and RA of 5.2-Ω · μm² STT-MRAM Technology for LLC Application. *Sakhare, S.*, +, *TED Sept. 2020 3618-3625*
- A Compact Phase Change Memory Model With Dynamic State Variables. *Hu, H.*, +, *TED Jan. 2020 133-139*
- A Comprehensive Investigation on Short-Circuit Oscillation of p-GaN HEMTs. *Xue, P.*, +, *TED Nov. 2020 4849-4857*
- A Comprehensive Physics-Based Current-Voltage SPICE Compact Model for 2-D-Material-Based Top-Contact Bottom-Gated Schottky-Barrier FETs. *Ahsan, S.A.*, +, *TED Nov. 2020 5188-5195*
- A Four-Port Model of Light-Emitting Transistors for Circuit Simulation and Application. *Yang, L.*, +, *TED Dec. 2020 5572-5580*
- A Theoretical Study of Multidomain Ferroelectric Switching Dynamics With a Physics-Based SPICE Circuit Model for Phase-Field Simulations. *Hsu, C.*, +, *TED July 2020 2952-2959*
- Analysis of High-Frequency Measurement of Transistors Along With Electromagnetic and SPICE Cosimulation. *Fregonese, S.*, +, *TED Nov. 2020 4770-4776*
- Charge-Based Compact Drain Current Modeling of InAs-OI-Si MOSFET Including Subband Energies and Band Nonparabolicity. *Maity, S.K.*, +, *TED June 2020 2282-2289*
- Compact Model of Dzyaloshinskii Domain Wall Motion-Based MTJ for Spin Neural Networks. *Wang, C.*, +, *TED June 2020 2621-2626*
- Drain-Erase Scheme in Ferroelectric Field Effect Transistor—Part II: 3-D-NAND Architecture for In-Memory Computing. *Wang, P.*, +, *TED March 2020 962-967*
- Extreme Temperature Modeling of AlGaIn/GaN HEMTs. *Albahrani, S.A.*, +, *TED Feb. 2020 430-437*
- SPICE-Based Multiphysics Model to Analyze the Dynamics of Ferroelectric Negative-Capacitance-Electrostatic MEMS Hybrid Actuators. *Raman, R.T.*, +, *TED Nov. 2020 5174-5181*
- Ultrahigh-Density 3-D Vertical RRAM With Stacked Junctionless Nanowires for In-Memory-Computing Applications. *Ezzadeen, M.*, +, *TED Nov. 2020 4626-4630*
- Spin coating**
- 0.7-GHz Solution-Processed Indium Oxide Rectifying Diodes. *Li, M.*, +, *TED Jan. 2020 360-364*
- Effects of the Molecular Chain Length of Polyimide on the Characteristics of Organic Resistive Random Access Memories. *Wu, C.*, +, *TED Jan. 2020 277-282*
- High-Performance Flexible Resistive RAM With PVP:GO Composite and Ultrathin HfO_x Hybrid Bilayer. *Varun, I.*, +, *TED March 2020 949-954*
- Study on Multilevel Resistive Switching Behavior With Tunable ON/OFF Ratio Capability in Forming-Free ZnO QDs-Based RRAM. *Wang, W.*, +, *TED Nov. 2020 4884-4890*
- Spin dynamics**
- Dynamic Skyrmion-Mediated Switching of Perpendicular MTJs: Feasibility Analysis of Scaling to 20 nm With Thermal Noise. *Rajib, M.M.*, +, *TED Sept. 2020 3883-3888*

Spin Hall effect

Computing-in-Memory Architecture Using Energy-Efficient Multilevel Voltage-Controlled Spin-Orbit Torque Device. *Shreya, S.*, +, *TED May 2020 1972-1979*

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- Insight into Buffer Trap-Induced Current Saturation and Current Collapse in GaN RF Heterojunction Field-Effect Transistors. *Tripathi, D.C.*, +, *TED Dec. 2020 5460-5465*
- Interface Defect Shielding of Electron Trapping in a-InGaZnO Thin Film Transistors. *Lin, C.*, +, *TED Sept. 2020 3645-3649*
- Investigating the Failure Mechanism of Short-Circuit Tests in 1.2-kV SiC JBS-Integrated MOSFETs. *Zhang, Y.*, +, *TED Oct. 2020 4027-4032*
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- Investigation of Switching Time in GaN/AlN Resonant Tunneling Diodes by Experiments and P-SPICE Models. *Zhang, W.*, +, *TED Jan. 2020 75-79*
- Investigation of Wide- and Ultrawide-Bandgap Semiconductors From Impact-Ionization Coefficients. *Nouketcha, F.L.L.*, +, *TED Oct. 2020 3999-4005*
- Investigation on Photoanode Modified With TiO₂-ZnO-Ag Nanofibers in Dye-Sensitized Solar Cell Under Different Intensities of Illuminations. *Nien, Y.*, +, *TED Nov. 2020 4983-4989*
- Investigations of SiC MOSFET Short-Circuit Failure Mechanisms Using Electrical, Thermal, and Mechanical Stress Analyses. *Yao, K.*, +, *TED Oct. 2020 4328-4334*
- Large-Scale Fabrication of Submicrometer-Gate-Length MOSFETs With a Trilayer PtSe₂ Channel Grown by Molecular Beam Epitaxy. *Xiong, K.*, +, *TED March 2020 796-801*
- Long-Term Aging of Al₂O₃ Passivated and Unpassivated Flexible a-IGZO TFTs. *Costa, J.C.*, +, *TED Nov. 2020 4934-4939*
- Low-Frequency Noise Investigation of GaN/AlGaIn Metal-Oxide-Semiconductor High-Electron-Mobility Field-Effect Transistor With Different Gate Length and Orientation. *Takakura, K.*, +, *TED Aug. 2020 3062-3068*
- Machine Learning-Based Statistical Approach to Analyze Process Dependencies on Threshold Voltage in Recessed Gate AlGaIn/GaN MIS-HEMTs. *Wu, T.*, +, *TED Dec. 2020 5448-5453*
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- Mg_{0.35}Zn_{0.65}O/Al/ZnO Photodetectors With Capability of Identifying Ultraviolet-A/Ultraviolet-B. *Liu, H.*, +, *TED July 2020 2812-2818*
- Microcantilever Printed Back-to-Back ZnO Single-Nanowire Schottky Diodes. *Yadav, V.K.S.*, +, *TED Aug. 2020 3309-3314*
- Modeling and Analysis of Normally-OFF p-GaN Gate AlGaIn/GaN HEMT as an ON-Chip Capacitor. *Abdulsalam, A.*, +, *TED Sept. 2020 3536-3540*
- Modeling Bias Dependence of Self-Heating in GaN HEMTs Using Two Heat Sources. *Chen, X.*, +, *TED Aug. 2020 3082-3087*
- Modeling of Enhancement-Mode GaN-GIT for High-Power and High-Temperature Application. *Shamsir, S.*, +, *TED Feb. 2020 588-594*
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- N-Buffer Design for Silicon-Based Power Diode Targeting High Dynamic Robustness and High Operating Temperature Over 448 K. *Nakamura, K.*, +, *TED June 2020 2437-2444*
- Near-Interface Trap Model for the Low Temperature Conductance Signal in SiC MOS Capacitors With Nitrided Gate Oxides. *Nicholls, J.R.*, +, *TED Sept. 2020 3722-3728*
- New Room Temperature Ammonia Gas Sensor Synthesized by a Tantalum Pentoxide (Ta₂O₅) Dielectric and Catalytic Platinum (Pt) Metals. *Liu, B.*, +, *TED June 2020 2566-2572*
- New Strained LDMOS With Ultralow ON-Resistance by Si_{1-y}C_y Source Stressor for About 20 V Low-Voltage Applications. *Li, M.*, +, *TED Nov. 2020 4998-5004*
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- On-Wafer Fast Evaluation of Failure Mechanism of 0.25- μ m AlGaIn/GaN HEMTs: Evidence of Sidewall Indiffusion. *Rzin, M.*, +, *TED July 2020 2765-2770*
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- p-Channel TFET Operation of Bilayer Structures With Type-II Heterotunneling Junction of Oxide- and Group-IV Semiconductors. *Kato, K.*, +, *TED April 2020 1880-1886*
- p-Diamond, Si, GaN, and InGaAs TeraFETs. *Zhang, Y.*, +, *TED Nov. 2020 4858-4865*
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- Prospects for Wide Bandgap and Ultrawide Bandgap CMOS Devices. *Bader, S.J.*, +, *TED Oct. 2020 4010-4020*
- Quick Design of a Superjunction Considering Charge Imbalance Due to Process Variations. *Akshay, K.*, +, *TED Aug. 2020 3024-3029*
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- RESURF n-LDMOS Transistor for Advanced Integrated Circuits in 4H-SiC. *WeiBe, J.*, +, *TED Aug. 2020 3278-3284*
- Room Temperature Hydrogen Sensing Investigation of Zinc Oxide Schottky Thin-Film Transistors: Dependence on Film Thickness. *Ghosh, S.*, +, *TED Dec. 2020 5701-5709*
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- Suppression of Surface Leakage Currents in InAs Avalanche Photodiodes via Sputtering of High- k Dielectric Layers. *Cao, Z.*, +, *TED Oct. 2020 4269-4273*
- Surface Potential-Based Analytical Modeling of Electrostatic and Transport Phenomena of GaN Nanowire Junctionless MOSFET. *Khan, M.I.*, +, *TED Sept. 2020 3568-3576*
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- The Design of Aluminum Nitride-Based Lead-Free Piezoelectric MEMS Accelerometer System. *Chen, Z.*, +, *TED Oct. 2020 4399-4404*
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- V-Pits-Induced Photoresponse Enhancement in AlGaIn UV-B Photodetectors on Si (111). *Rathkanthiwar, S.*, +, *TED Oct. 2020 4281-4287*
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- Encapsulated X-Ray Detector Enabled by All-Inorganic Lead-Free Perovskite Film With High Sensitivity and Low Detection Limit. *Zhang, H.*, +, *TED Aug. 2020 3191-3198*
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