

2020 Index

IEEE Transactions on Semiconductor Manufacturing

Vol. 33

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.

AUTHOR INDEX

A

- Aarnink, A.A.I.**, *see* van der Zouw, K., *TSM May 2020* 202-209
- Abbas, Q.**, *see* Saqlain, M., *TSM Aug. 2020* 436-444
- Adachi, K.**, *see* Tanaka, C., *TSM May 2020* 146-149
- Aggarwal, G.**, *see* Bhat, T.S., *TSM Aug. 2020* 487-489
- Aggarwal, G.**, *see* Bhat, T.S., *TSM Aug. 2020* 433-435
- Aktas, O.**, *see* Li, X., *TSM Nov. 2020* 534-538
- Ali Zargar, O.**, *see* Lin, T., *TSM May 2020* 310-315
- Amirifar, N.**, *see* Li, X., *TSM Nov. 2020* 534-538
- Anderson, T.J.**, *see* Ebrish, M.A., *TSM Nov. 2020* 546-551
- Arai, M.**, *see* Nagamura, Y., *TSM Nov. 2020* 597-605
- Ashizawa, H.**, *see* Mitsuya, H., *TSM May 2020* 180-186
- Asuke, T.**, *see* Kishida, R., *TSM May 2020* 174-179
- Azamfar, M.**, Li, X., and Lee, J., Deep Learning-Based Domain Adaptation Method for Fault Diagnosis in Semiconductor Manufacturing; *TSM Aug. 2020* 445-453

B

- Bakeroot, B.**, *see* Li, X., *TSM Nov. 2020* 534-538
- Bampi, S.**, *see* Brito, J.P.M., *TSM May 2020* 166-173
- Basceri, C.**, *see* Li, X., *TSM Nov. 2020* 534-538
- Basten, R.**, *see* Lamghari-Idrissi, D., *TSM Nov. 2020* 504-510
- Baumann, F.H.**, Popielarski, B., Lu, Y., and Mitchell, T., Extension of CD-TEM Towards 3D Elemental Mapping; *TSM Aug. 2020* 346-351
- Bhat, T.S.**, Shintri, S., Chen, B., Lo, H., Peng, J., Qi, Y., Willeman, M., Mishra, S.K., Yuksek, N., and Gao, W.Z., Abnormal Silicon-Germanium (SiGe) Epitaxial Growth in FinFETs; *TSM May 2020* 291-294
- Bhat, T.S.**, Aggarwal, G., Yerubandi, G., and Bolton, D., Critical Dimension Bimodality Both Within Wafer and Within Die; *TSM Aug. 2020* 487-489
- Bhat, T.S.**, Aggarwal, G., Montgomery, C., and Martin, J., Surface Copper Voids in BEOL Copper Metal Layers; *TSM Aug. 2020* 433-435
- Bickford, J.P.**, Patterson, O.D., Radloff, S., and Werbaneth, P., Guest Editorial Special Section on the 2019 SEMI Advanced Semiconductor Manufacturing Conference; *TSM Aug. 2020* 319-321
- Blair, E.O.**, *see* Marland, J.R.K., *TSM May 2020* 196-201
- Blair, E.O.**, Buchoux, A., Tsiamis, A., Dunare, C., Marland, J.R.K., Gray, M.E., Terry, J.G., Smith, S., and Walton, A.J., Test Structures for Developing Packaging for Implantable Sensors; *TSM May 2020* 224-231
- Blevins, J.D.**, Development of a World Class Silicon Carbide Substrate Manufacturing Capability; *TSM Nov. 2020* 539-545
- Blue, J.**, *see* Chouichi, A., *TSM Feb. 2020* 86-95
- Bolton, D.**, *see* Bhat, T.S., *TSM Aug. 2020* 487-489
- Braun, M.W.**, *see* Haddad, B.M., *TSM Aug. 2020* 357-372

C

- Brito, J.P.M.**, and Bampi, S., Two Transistors Voltage-Measurement-Based Test Structure for Fast MOSFET Device Mismatch Characterization; *TSM May 2020* 166-173
- Buchoux, A.**, *see* Blair, E.O., *TSM May 2020* 224-231
- C**
- Cerbu, D.**, *see* Maslow, M.J., *TSM Feb. 2020* 42-52
- Chae, H.**, *see* Lee, S., *TSM May 2020* 252-257
- Chang, J.**, *see* Nien, Y., *TSM May 2020* 295-301
- Chang, J.**, *see* Chou, J., *TSM Feb. 2020* 121-127
- Chaudhary, N.**, and Savari, S.A., Increasing the Utilization of Deep Neural Networks for SEM Measurements Through Multiple Task Formulation and Visualization; *TSM Aug. 2020* 322-330
- Chen, B.**, *see* Bhat, T.S., *TSM May 2020* 291-294
- Chen, C.**, *see* Chien, C., *TSM Nov. 2020* 644-652
- Chen, H.**, *see* Nien, Y., *TSM May 2020* 295-301
- Chen, H.**, *see* Chou, J., *TSM Feb. 2020* 121-127
- Chen, J.**, *see* Zhan, X., *TSM Feb. 2020* 116-120
- Chen, Y.**, *see* Chien, C., *TSM Nov. 2020* 569-577
- Cheng, K.**, Elimination of Metal Fencing by Optimizing Evaporator Dome Alignment; *TSM Nov. 2020* 564-568
- Cheng, K.C.**, *see* Li, K.S., *TSM Aug. 2020* 383-390
- Chien, C.**, and Chen, C., Data-Driven Framework for Tool Health Monitoring and Maintenance Strategy for Smart Manufacturing; *TSM Nov. 2020* 644-652
- Chien, C.**, Chen, Y., and Lo, M., Advanced Quality Control (AQC) of Silicon Wafer Specifications for Yield Enhancement for Smart Manufacturing; *TSM Nov. 2020* 569-577
- Cho, S.**, *see* Shim, J., *TSM May 2020* 258-266
- Choi, M.**, *see* Park, S., *TSM Feb. 2020* 109-115
- Chou, J.**, *see* Nien, Y., *TSM May 2020* 295-301
- Chou, J.**, Ko, C., Chang, J., Nien, Y., Lai, C., Kuo, P., Chen, H., Hsu, H., and Hu, G., Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity; *TSM Feb. 2020* 121-127
- Chou, L.**, *see* Li, K.S., *TSM Aug. 2020* 383-390
- Chouichi, A.**, Blue, J., Yugma, C., and Pasqualini, F., Chamber-to-Chamber Discrepancy Detection in Semiconductor Manufacturing; *TSM Feb. 2020* 86-95
- Chu, E.**, Luo, Y., and Gupta, P., Design Impacts of Back-End-of-Line Line Edge Roughness; *TSM Feb. 2020* 32-41
- Cross, A.**, *see* Sah, K., *TSM Feb. 2020* 23-31
- D**
- Decoutere, S.**, *see* Li, X., *TSM Nov. 2020* 534-538
- Dellaert, N.**, *see* Lamghari-Idrissi, D., *TSM Nov. 2020* 504-510
- Slugolecka, A.**, *see* Hugger, A., *TSM Nov. 2020* 552-556
- Do, Y.**, *see* Park, S., *TSM Feb. 2020* 109-115
- Dodge, S.F.**, *see* Haddad, B.M., *TSM Aug. 2020* 357-372
- Driussi, F.**, Venica, S., Gahoi, A., Kataria, S., Lemme, M.C., and Palestri, P., Dependability Assessment of Transfer Length Method to Extract the Metal–Graphene Contact Resistance; *TSM May 2020* 210-215
- Dunare, C.**, *see* Marland, J.R.K., *TSM May 2020* 196-201
- Dunare, C.**, *see* Blair, E.O., *TSM May 2020* 224-231

E

- Ebrish, M.A.**, Anderson, T.J., Koehler, A.D., Foster, G.M., Gallagher, J.C., Kaplar, R.J., Gunning, B.P., and Hobart, K.D., A Study on the Impact of Mid-Gap Defects on Vertical GaN Diodes; *TSM Nov. 2020* 546-551
Ehrbrecht, R., *see* Hugger, A., *TSM Nov. 2020* 552-556

F

- Fahle, D.**, *see* Li, X., *TSM Nov. 2020* 534-538
Fan, W., *see* Yan, Y., *TSM Aug. 2020* 476-486
Fan, W., *see* Gowda, A., *TSM Nov. 2020* 614-621
Fay, P., Guest Editorial Special Section on the 2020 International Conference on Compound Semiconductor Manufacturing Technology (CS-MANTECH); *TSM Nov. 2020* 532-533
Feng, M., *see* Wu, D., *TSM Nov. 2020* 557-563
Fienhold, L., *see* Zhakov, A., *TSM Aug. 2020* 337-345
Foster, G.M., *see* Ebrish, M.A., *TSM Nov. 2020* 546-551
Fowler, J.W., Monch, L., and Lee, T., Guest Editorial Special Section—Papers From the 2019 MASM/WSC Conference; *TSM Nov. 2020* 493-495
Frommhold, A., *see* Maslow, M.J., *TSM Feb. 2020* 42-52
Fu, Y., *see* Zhan, X., *TSM Feb. 2020* 116-120
Fukui, M., *see* Takeuchi, K., *TSM May 2020* 159-165
Fukumoto, S., *see* Nagamura, Y., *TSM Nov. 2020* 597-605
Furukawa, K., *see* Takeuchi, K., *TSM May 2020* 159-165
Furuta, J., *see* Kishida, R., *TSM May 2020* 174-179

G

- Gahoi, A.**, *see* Driussi, F., *TSM May 2020* 210-215
Gallagher, J.C., *see* Ebrish, M.A., *TSM Nov. 2020* 546-551
Gao, W.Z., *see* Bhat, T.S., *TSM May 2020* 291-294
Gebreselasie, E., Ngu, Y., Loiseau, A., and McCallum-Cook, I., Characterization of eFuse Programming for Varying RF BiCMOS Technology Silicides; *TSM Aug. 2020* 331-336
Geens, K., *see* Li, X., *TSM Nov. 2020* 534-538
Gonzalez-Fernandez, E., *see* Marland, J.R.K., *TSM May 2020* 196-201
Gowda, A., Rai, S., Zhuang, Y., and Fan, W., A Novel Method to Quantify Conditioner-to-Conditioner Variation and Predict Conditioner Lifetime and Process Failure Mode in Chemical Mechanical Planarization (CMP) Environment; *TSM Nov. 2020* 614-621
Gray, M.E., *see* Blair, E.O., *TSM May 2020* 224-231
Groeseneken, G., *see* Li, X., *TSM Nov. 2020* 534-538
Gunning, B.P., *see* Ebrish, M.A., *TSM Nov. 2020* 546-551
Guo, B., Zhuang, J., Wu, Y., Wu, W., Wu, F., and Peng, Q., Color Difference Detection of Polysilicon Wafers Using Optimized Support Vector Machine by Magnetic Bacteria Optimization Algorithm With Elitist Strategy; *TSM May 2020* 267-282
Guo, P., *see* Yu, J., *TSM Aug. 2020* 454-465
Gupta, P., *see* Chu, E., *TSM Feb. 2020* 32-41

H

- Haddad, B.M.**, Dodge, S.F., Karam, L.J., Patel, N.S., and Braun, M.W., Locally Adaptive Statistical Background Modeling With Deep Learning-Based False Positive Rejection for Defect Detection in Semiconductor Units; *TSM Aug. 2020* 357-372
Hafer, R.F., Lin, H., Stamper, A., Hsieh, B.Y., and Hsieh, J., Electron Beam Inspection in Physical Mode: Overpolish Monitoring of RMG CMP; *TSM Aug. 2020* 352-356
Hahn, H., *see* Li, X., *TSM Nov. 2020* 534-538
Halder, S., *see* Sah, K., *TSM Feb. 2020* 23-31
Hara, A., *see* Maslow, M.J., *TSM Feb. 2020* 42-52
Hashiguchi, G., *see* Mitsuya, H., *TSM May 2020* 180-186
Hassoun, M., *see* Kopp, D., *TSM Nov. 2020* 522-531
Heuken, M., *see* Li, X., *TSM Nov. 2020* 534-538
Hiramoto, T., *see* Takeuchi, K., *TSM May 2020* 159-165

Hobart, K.D., *see* Ebrish, M.A., *TSM Nov. 2020* 546-551

Homma, H., *see* Mitsuya, H., *TSM May 2020* 180-186

Hosch, M., *see* Hugger, A., *TSM Nov. 2020* 552-556

Hoshii, T., *see* Takeuchi, K., *TSM May 2020* 159-165

Hsieh, B.Y., *see* Hafer, R.F., *TSM Aug. 2020* 352-356

Hsieh, J., *see* Hafer, R.F., *TSM Aug. 2020* 352-356

Hsu, H., *see* Nien, Y., *TSM May 2020* 295-301

Hsu, H., *see* Chou, J., *TSM Feb. 2020* 121-127

Hu, G., *see* Nien, Y., *TSM May 2020* 295-301

Hu, G., *see* Chou, J., *TSM Feb. 2020* 121-127

Hu, S., *see* Lin, T., *TSM May 2020* 310-315

Huang, A.Y., *see* Li, K.S., *TSM Aug. 2020* 383-390

Hugger, A., Dlugolecka, A., Stieglauer, H., Ehrbrecht, R., and Hosch, M., Impact of Water Content in NMP on Ohmic Contacts in GaN HEMT Technologies; *TSM Nov. 2020* 552-556

Hummel, S., *see* Zhakov, A., *TSM Aug. 2020* 337-345

Hwang, J., and Kim, H., Variational Deep Clustering of Wafer Map Patterns; *TSM Aug. 2020* 466-475

Hyun, Y., and Kim, H., Memory-Augmented Convolutional Neural Networks With Triplet Loss for Imbalanced Wafer Defect Pattern Classification; *TSM Nov. 2020* 622-634

I

Ide, T., *see* Nagamura, Y., *TSM Nov. 2020* 597-605

Iguchi, Y., *see* Tanaka, C., *TSM May 2020* 146-149

Itou, K., *see* Takeuchi, K., *TSM May 2020* 159-165

Iwai, H., *see* Takeuchi, K., *TSM May 2020* 159-165

J

Jang, H., *see* Lee, S., *TSM May 2020* 252-257

Jang, J., Seo, M., and Kim, C.O., Support Weighted Ensemble Model for Open Set Recognition of Wafer Map Defects; *TSM Nov. 2020* 635-643

Jang, J.K., Tak, H.W., Shin, Y.J., Kim, D.S., and Yeom, G.Y., Plasma Induced Damage Reduction of Ultra Low-k Dielectric by Using Source Pulsed Plasma Etching for Next BEOL Interconnect Manufacturing; *TSM May 2020* 302-309

Janyani, V., *see* Kumar, A., *TSM Nov. 2020* 606-613

Jiang, X., *see* Li, K.S., *TSM Aug. 2020* 383-390

Juina, O., *see* Lin, T., *TSM May 2020* 310-315

Jung, G., *see* Lee, J., *TSM Nov. 2020* 496-503

K

Kakushima, K., *see* Takeuchi, K., *TSM May 2020* 159-165

Kalir, A., *see* Kopp, D., *TSM Nov. 2020* 522-531

Kang, S., *see* Shim, J., *TSM May 2020* 258-266

Kang, S., *see* Seo, S., *TSM Aug. 2020* 391-403

Kaplar, R.J., *see* Ebrish, M.A., *TSM Nov. 2020* 546-551

Karam, L.J., *see* Haddad, B.M., *TSM Aug. 2020* 357-372

Kareem, P., Kwon, Y., and Shin, Y., Layout Pattern Synthesis for Lithography Optimizations; *TSM May 2020* 283-290

Kataria, S., *see* Driussi, F., *TSM May 2020* 210-215

Kim, B., *see* Lee, J., *TSM Nov. 2020* 496-503

Kim, C.O., *see* Kim, S.J., *TSM Feb. 2020* 53-61

Kim, C.O., *see* Jang, J., *TSM Nov. 2020* 635-643

Kim, D.S., *see* Jang, J.K., *TSM May 2020* 302-309

Kim, H., *see* Hwang, J., *TSM Aug. 2020* 466-475

Kim, H., Lim, D., and Lee, S., Deep Learning-Based Dynamic Scheduling for

Semiconductor Manufacturing With High Uncertainty of Automated Material Handling System Capability; *TSM Feb. 2020* 13-22

Kim, H., *see* Lee, H., *TSM Nov. 2020* 653-662

Kim, H., *see* Lee, J., *TSM Nov. 2020* 496-503

Kim, H., *see* Hyun, Y., *TSM Nov. 2020* 622-634

Kim, J., *see* Park, S., *TSM Feb. 2020* 109-115

Kim, S.J., *see* Lee, S., *TSM May 2020* 252-257

- Kim, S.J.**, Yoon, H.G., Lee, K.B., and Kim, C.O., Hybrid Overlay Modeling for Field-by-Field Error Correction in the Photolithography Process; *TSM Feb. 2020* 53-61
- Kim, S.J.**, *see* Kim, S.J., *TSM Feb. 2020* 53-61
- Kim, Y.**, *see* Lee, S., *TSM May 2020* 252-257
- Kim, Y.**, *see* Lee, J., *TSM Nov. 2020* 496-503
- Kim, Y.B.**, *see* Lee, J., *TSM Nov. 2020* 496-503
- Kishida, R.**, Asuke, T., Furuta, J., and Kobayashi, K., Extracting Voltage Dependence of BTI-induced Degradation Without Temporal Factors by Using BTI-Sensitive and BTI-Insensitive Ring Oscillators; *TSM May 2020* 174-179
- Ko, C.**, *see* Nien, Y., *TSM May 2020* 295-301
- Ko, C.**, *see* Chou, J., *TSM Feb. 2020* 121-127
- Kobayashi, K.**, *see* Kishida, R., *TSM May 2020* 174-179
- Koehler, A.D.**, *see* Ebrish, M.A., *TSM Nov. 2020* 546-551
- Kong, Y.**, and Ni, D., A Semi-Supervised and Incremental Modeling Framework for Wafer Map Classification; *TSM Feb. 2020* 62-71
- Kong, Y.**, and Ni, D., Qualitative and Quantitative Analysis of Multi-Pattern Wafer Bin Maps; *TSM Nov. 2020* 578-586
- Kopp, D.**, Hassoun, M., Kalir, A., and Monch, L., SMT2020—A Semiconductor Manufacturing Testbed; *TSM Nov. 2020* 522-531
- Kopp, D.**, and Monch, L., Matheuristics for Qualification Management Decisions in Wafer fabs; *TSM Nov. 2020* 511-521
- Kovalgin, A.Y.**, *see* van der Zouw, K., *TSM May 2020* 202-209
- Kumar, A.**, Prasad, M., Janyani, V., and Yadav, R.P., Development of Diaphragm and Microtunnel Structures for MEMS Piezoelectric Sensors; *TSM Nov. 2020* 606-613
- Kuo, H.**, *see* Su, C., *TSM Aug. 2020* 373-382
- Kuo, P.**, *see* Nien, Y., *TSM May 2020* 295-301
- Kuo, P.**, *see* Chou, J., *TSM Feb. 2020* 121-127
- Kuribara, K.**, *see* Shintani, M., *TSM May 2020* 216-223
- Kuroda, R.**, *see* Maeda, T., *TSM May 2020* 232-239
- Kwon, Y.**, *see* Kareem, P., *TSM May 2020* 283-290
-
- L**
- Lai, C.**, *see* Nien, Y., *TSM May 2020* 295-301
- Lai, C.**, *see* Chou, J., *TSM Feb. 2020* 121-127
- Lamghari-Idrissi, D.**, Basten, R., Dellaert, N., and van Houtum, G., Which Spare Parts Service Measure to Choose for a Front-End Wafer Fab?; *TSM Nov. 2020* 504-510
- Lee, C.**, *see* Li, K.S., *TSM Aug. 2020* 383-390
- Lee, H.**, and Kim, H., Semi-Supervised Multi-Label Learning for Classification of Wafer Bin Maps With Mixed-Type Defect Patterns; *TSM Nov. 2020* 653-662
- Lee, J.**, *see* Azamfar, M., *TSM Aug. 2020* 445-453
- Lee, J.**, Kim, Y., Kim, Y.B., Kim, B., Jung, G., and Kim, H., A Sequential Search Method of Dispatching Rules for Scheduling of LCD Manufacturing Systems; *TSM Nov. 2020* 496-503
- Lee, J.Y.**, *see* Saqlain, M., *TSM Aug. 2020* 436-444
- Lee, K.B.**, *see* Kim, S.J., *TSM Feb. 2020* 53-61
- Lee, S.**, Jang, H., Kim, Y., Kim, S.J., and Chae, H., Sensitivity Enhancement of SiO₂ Plasma Etching Endpoint Detection Using Modified Gaussian Mixture Model; *TSM May 2020* 252-257
- Lee, S.**, *see* Kim, H., *TSM Feb. 2020* 13-22
- Lee, T.**, *see* Lin, T., *TSM May 2020* 310-315
- Lee, T.**, *see* Fowler, J.W., *TSM Nov. 2020* 493-495
- Lee, Y.**, *see* Seo, S., *TSM Aug. 2020* 391-403
- Lee, Y.**, *see* Tsai, T., *TSM Nov. 2020* 663-672
- Leggett, G.**, *see* Lin, T., *TSM May 2020* 310-315
- Lei, M.**, *see* Park, S., *TSM Feb. 2020* 109-115
- Lemme, M.C.**, *see* Driussi, F., *TSM May 2020* 210-215
- Leray, P.**, *see* Sah, K., *TSM Feb. 2020* 23-31
- Leu, Y.**, *see* Lin, C., *TSM Aug. 2020* 404-412
- Li, K.S.**, Tsai, N.C., Cheng, K.C., Jiang, X., Liao, P.Y., Wang, S., Huang, A.Y., Chou, L., and Lee, C., TestDNA: Novel Wafer Defect Signature for Diagnosis and Pattern Recognition; *TSM Aug. 2020* 383-390
-
- M**
- Li, X.**, *see* Azamfar, M., *TSM Aug. 2020* 445-453
- Li, X.**, Geens, K., Wellekens, D., Zhao, M., Magnani, A., Amirifar, N., Bakeroot, B., You, S., Fahle, D., Hahn, H., Heuken, M., Odnoblyudov, V., Aktas, O., Basceri, C., Marcon, D., Groeseneken, G., and Decoutere, S., Integration of 650 V GaN Power ICs on 200 mm Engineered Substrates; *TSM Nov. 2020* 534-538
- Li, X.**, *see* Wang, J., *TSM Nov. 2020* 587-596
- Liao, P.Y.**, *see* Li, K.S., *TSM Aug. 2020* 383-390
- Lim, D.**, *see* Kim, H., *TSM Feb. 2020* 13-22
- Lim, H.**, *see* Seo, S., *TSM Aug. 2020* 391-403
- Lin, C.**, and Leu, Y., Applying Taguchi's Method, Artificial Neural Network and Genetic Algorithm to Reduce the CoSi₂ Resistance Deviation of DRAM Products; *TSM Aug. 2020* 404-412
- Lin, H.**, *see* Hafer, R.F., *TSM Aug. 2020* 352-356
- Lin, T.**, Ali Zargar, O., Juina, O., Lee, T., Sabusap, D.L., Hu, S., and Leggett, G., Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System; *TSM May 2020* 310-315
- Lin, T.**, *see* Yan, Y., *TSM Aug. 2020* 476-486
- Lin, Y.**, *see* Lu, H., *TSM Aug. 2020* 413-423
- Lin, Y.**, *see* Su, C., *TSM Aug. 2020* 373-382
- Lin, Z.**, *see* Su, C., *TSM Aug. 2020* 373-382
- Lo, H.**, *see* Bhat, T.S., *TSM May 2020* 291-294
- Lo, M.**, *see* Chien, C., *TSM Nov. 2020* 569-577
- Loiseau, A.**, *see* Gebreselasie, E., *TSM Aug. 2020* 331-336
- Lu, H.**, Su, C., Yang, S., and Lin, Y., Combination of Convolutional and Generative Adversarial Networks for Defect Image Demoiréing of Thin-Film Transistor Liquid-Crystal Display Image; *TSM Aug. 2020* 413-423
- Lu, Y.**, *see* Baumann, F.H., *TSM Aug. 2020* 346-351
- Luo, X.**, Xiao, L., and Wang, X., Crack-Free Fabrication and Electrical Characterization of Coaxial Ultra-Low-Resistivity-Silicon Through-Silicon-Vias; *TSM Feb. 2020* 103-108
- Luo, Y.**, *see* Chu, E., *TSM Feb. 2020* 32-41

Murray, A.F., *see* Marland, J.R.K., *TSM May 2020* 196-201

N

Nagamura, Y., Ide, T., Arai, M., and Fukumoto, S., CNN-Based Layout Segment Classification for Analysis of Layout-Induced Failures; *TSM Nov. 2020* 597-605

Nakayama, A., *see* Tanaka, C., *TSM May 2020* 146-149

Ngu, Y., *see* Gebreselasie, E., *TSM Aug. 2020* 331-336

Ni, D., *see* Kong, Y., *TSM Feb. 2020* 62-71

Ni, D., *see* Kong, Y., *TSM Nov. 2020* 578-586

Nien, Y., Hu, G., Rangasamy, M., Chen, H., Hsu, H., Chou, J., Lai, C., Kuo, P., Ko, C., and Chang, J., Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers; *TSM May 2020* 295-301

Nien, Y., *see* Chou, J., *TSM Feb. 2020* 121-127

Nishizawa, S., *see* Takeuchi, K., *TSM May 2020* 159-165

Numasawa, Y., *see* Takeuchi, K., *TSM May 2020* 159-165

O

O'Leary, J., Sawlani, K., and Mesbah, A., Deep Learning for Classification of the Chemical Composition of Particle Defects on Semiconductor Wafers; *TSM Feb. 2020* 72-85

Odnoblyudov, V., *see* Li, X., *TSM Nov. 2020* 534-538

Ogasahara, Y., *see* Shintani, M., *TSM May 2020* 216-223

Ogura, A., *see* Takeuchi, K., *TSM May 2020* 159-165

Ohashi, H., *see* Takeuchi, K., *TSM May 2020* 159-165

Okamoto, Y., *see* Reddy, R.R., *TSM May 2020* 187-195

Omura, I., *see* Takeuchi, K., *TSM May 2020* 159-165

Omura, Y., *see* Maeda, T., *TSM May 2020* 232-239

P

Palestri, P., *see* Driussi, F., *TSM May 2020* 210-215

Park, S., Lei, M., Do, Y., Choi, M., and Kim, J., An Investigation of Field-Effect Passivation Layer Characteristics Using Second Harmonic Generation Measurement; *TSM Feb. 2020* 109-115

Pasqualini, F., *see* Chouichi, A., *TSM Feb. 2020* 86-95

Patel, N.S., *see* Haddad, B.M., *TSM Aug. 2020* 357-372

Patterson, O.D., *see* Bickford, J.P., *TSM Aug. 2020* 319-321

Peng, J., *see* Bhat, T.S., *TSM May 2020* 291-294

Peng, Q., *see* Guo, B., *TSM May 2020* 267-282

Peng, Y., *see* Wu, D., *TSM Nov. 2020* 557-563

Popielarski, B., *see* Baumann, F.H., *TSM Aug. 2020* 346-351

Prasad, M., *see* Kumar, A., *TSM Nov. 2020* 606-613

Q

Qi, Y., *see* Bhat, T.S., *TSM May 2020* 291-294

R

Radloff, S., *see* Bickford, J.P., *TSM Aug. 2020* 319-321

Rai, S., *see* Gowda, A., *TSM Nov. 2020* 614-621

Rangasamy, M., *see* Nien, Y., *TSM May 2020* 295-301

Rank, S., *see* Zhakov, A., *TSM Aug. 2020* 337-345

Reddy, R.R., Okamoto, Y., and Mita, Y., An On-Chip Micromachined Test Structure to Study the Tribological Behavior of Deep-RIE MEMS Sidewall Surfaces; *TSM May 2020* 187-195

S

Sabusap, D.L., *see* Lin, T., *TSM May 2020* 310-315

Sah, K., Halder, S., Cross, A., and Leray, P., Inspection of Stochastic Defects With Broadband Plasma Optical Systems for Extreme Ultraviolet (EUV) Lithography; *TSM Feb. 2020* 23-31

Saito, M., *see* Shintani, M., *TSM May 2020* 216-223

Saito, W., *see* Takeuchi, K., *TSM May 2020* 159-165

Saqlain, M., Abbas, Q., and Lee, J.Y., A Deep Convolutional Neural Network for Wafer Defect Identification on an Imbalanced Dataset in Semiconductor Manufacturing Processes; *TSM Aug. 2020* 436-444

Saraya, T., *see* Takeuchi, K., *TSM May 2020* 159-165

Sato, T., *see* Shintani, M., *TSM May 2020* 216-223

Sato, T., *see* Tsukamoto, H., *TSM May 2020* 150-158

Savari, S.A., *see* Chaudhary, N., *TSM Aug. 2020* 322-330

Sawlani, K., *see* O'Leary, J., *TSM Feb. 2020* 72-85

Schmidt, T., *see* Zhakov, A., *TSM Aug. 2020* 337-345

Schmitz, J., *see* van der Zouw, K., *TSM May 2020* 202-209

Sekitani, T., Guest Editorial Special Section on the International Conference on Microelectronic Test Structures (ICMTS); *TSM May 2020* 144-145

Seo, M., *see* Jang, J., *TSM Nov. 2020* 635-643

Seo, S., Lee, Y., Lim, H., and Kang, S., Advanced Low Pin Count Test Architecture for Efficient Multi-Site Testing; *TSM Aug. 2020* 391-403

Shigyo, N., *see* Takeuchi, K., *TSM May 2020* 159-165

Shim, J., Kang, S., and Cho, S., Active Learning of Convolutional Neural Network for Cost-Effective Wafer Map Pattern Classification; *TSM May 2020* 258-266

Shimomura, N., *see* Mitsuya, H., *TSM May 2020* 180-186

Shin, Y., *see* Kareem, P., *TSM May 2020* 283-290

Shin, Y.J., *see* Jang, J.K., *TSM May 2020* 302-309

Shintani, M., Saito, M., Kuribara, K., Ogasahara, Y., and Sato, T., Measurement and Modeling of Ambient-Air-Induced Degradation in Organic Thin-Film Transistor; *TSM May 2020* 216-223

Shintani, M., *see* Tsukamoto, H., *TSM May 2020* 150-158

Shintri, S., *see* Bhat, T.S., *TSM May 2020* 291-294

Siegel, A., *see* Zhakov, A., *TSM Aug. 2020* 337-345

Smith, S., *see* Marland, J.R.K., *TSM May 2020* 196-201

Smith, S., *see* Blair, E.O., *TSM May 2020* 224-231

Stamper, A., *see* Hafer, R.F., *TSM Aug. 2020* 352-356

Stieglauer, H., *see* Hugger, A., *TSM Nov. 2020* 552-556

Su, C., *see* Lu, H., *TSM Aug. 2020* 413-423

Su, C., Lin, Z., Lin, Y., and Kuo, H., Enhancement of Diffraction-Based Overlay Model for Overlay Target With Asymmetric Sidewall; *TSM Aug. 2020* 373-382

Su, C., *see* Su, F., *TSM Feb. 2020* 128-139

Su, F., and Su, C., TFT-LCD Contrast Ratio Improvement by Using Design for Six Sigma Disciplines; *TSM Feb. 2020* 128-139

Su, Y., *see* Zhan, X., *TSM Feb. 2020* 116-120

Sugawa, S., *see* Maeda, T., *TSM May 2020* 232-239

Suwa, T., *see* Maeda, T., *TSM May 2020* 232-239

Suzuki, S., *see* Takeuchi, K., *TSM May 2020* 159-165

T

Tak, H.W., *see* Jang, J.K., *TSM May 2020* 302-309

Takakura, T., *see* Takeuchi, K., *TSM May 2020* 159-165

Takeuchi, K., Fukui, M., Saraya, T., Itou, K., Takakura, T., Suzuki, S., Numasawa, Y., Shigyo, N., Kakushima, K., Hoshii, T., Furukawa, K., Watanabe, M., Wakabayashi, H., Tsutsui, K., Iwai, H., Ogura, A., Saito, W., Nishizawa, S., Tsukuda, M., Omura, I., Ohashi, H., and Hiramoto, T., Bipolar Transistor Test Structures for Extracting Minority Carrier Lifetime in IGBTs; *TSM May 2020* 159-165

Tanaka, C., Adachi, K., Nakayama, A., Iguchi, Y., and Yoshitomi, S., Experimental Extraction of Impact of Depletion Capacitance on Low Frequency Noise in Sub-Micron *n*MOSFETs With Reverse Body Bias; *TSM May 2020* 146-149

Tao, Q., *see* Yan, Y., *TSM Aug. 2020* 476-486

Teramoto, A., *see* Maeda, T., *TSM May 2020* 232-239

Terry, J.G., *see* Marland, J.R.K., *TSM May 2020* 196-201

Terry, J.G., *see* Blair, E.O., *TSM May 2020* 224-231

Toshiyoshi, H., *see* Mitsuya, H., *TSM May 2020* 180-186

Tsai, N.C., *see* Li, K.S., *TSM Aug. 2020* 383-390

Tsai, T., and Lee, Y., A Light-Weight Neural Network for Wafer Map Classification Based on Data Augmentation; *TSM Nov. 2020* 663-672

Tsiamicis, A., see Marland, J.R.K., *TSM May 2020* 196-201

Tsiamicis, A., see Blair, E.O., *TSM May 2020* 224-231

Tsukamoto, H., Shintani, M., and Sato, T., Statistical Extraction of Normally and Lognormally Distributed Model Parameters for Power MOSFETs; *TSM May 2020* 150-158

Tsukuda, M., see Takeuchi, K., *TSM May 2020* 159-165

Tsutsui, K., see Takeuchi, K., *TSM May 2020* 159-165

U

Uzsoy, R., Editorial; *TSM May 2020* 143

Uzsoy, R., see Manda, A.B., *TSM May 2020* 240-251

Uzsoy, R., see Ziarnetzky, T., *TSM Feb. 2020* 1-12

V

van Berkel, K., see van den Hurk, D., *TSM Aug. 2020* 424-432

van Berkel, K., see van den Hurk, D., *TSM Feb. 2020* 96-102

van den Hurk, D., Weiland, S., and van Berkel, K., Performance-Based Active Wafer Clamp Design for Wafer Heating Effects in EUV Lithography; *TSM Aug. 2020* 424-432

van den Hurk, D., Weiland, S., and van Berkel, K., Control of Thermo-Mechanical Wafer Deformations in EUV Lithography Using an Active Wafer Clamp; *TSM Feb. 2020* 96-102

van der Zouw, K., Aarnink, A.A.I., Schmitz, J., and Kovalgin, A.Y., Conduction and Electric Field Effect in Ultra-Thin Tungsten Films; *TSM May 2020* 202-209

van Houtum, G., see Lamghari-Idrissi, D., *TSM Nov. 2020* 504-510

Venica, S., see Driussi, F., *TSM May 2020* 210-215

W

Wakabayashi, H., see Takeuchi, K., *TSM May 2020* 159-165

Walton, A.J., see Marland, J.R.K., *TSM May 2020* 196-201

Walton, A.J., see Blair, E.O., *TSM May 2020* 224-231

Wang, H., see Yan, Y., *TSM Aug. 2020* 476-486

Wang, J., Xu, C., Yang, Z., Zhang, J., and Li, X., Deformable Convolutional Networks for Efficient Mixed-Type Wafer Defect Pattern Recognition; *TSM Nov. 2020* 587-596

Wang, S., see Li, K.S., *TSM Aug. 2020* 383-390

Wang, X., see Luo, X., *TSM Feb. 2020* 103-108

Watanabe, M., see Takeuchi, K., *TSM May 2020* 159-165

Weiland, S., see van den Hurk, D., *TSM Aug. 2020* 424-432

Weiland, S., see van den Hurk, D., *TSM Feb. 2020* 96-102

Wellekens, D., see Li, X., *TSM Nov. 2020* 534-538

Werbaneth, P., see Bickford, J.P., *TSM Aug. 2020* 319-321

Willeman, M., see Bhat, T.S., *TSM May 2020* 291-294

Wu, D., Peng, Y., Yu, X., and Feng, M., Process Optimization and Microwave Model of GaAs Photodiodes for 50 Gb/s Optical Links; *TSM Nov. 2020* 557-563

Wu, F., see Guo, B., *TSM May 2020* 267-282

Wu, W., see Guo, B., *TSM May 2020* 267-282

Wu, Y., see Guo, B., *TSM May 2020* 267-282

X

Xiao, L., see Luo, X., *TSM Feb. 2020* 103-108

Xiao, Y., see Yan, Y., *TSM Aug. 2020* 476-486

Xu, C., see Wang, J., *TSM Nov. 2020* 587-596

Xu, H., see Zhan, X., *TSM Feb. 2020* 116-120

Y

Yadav, R.P., see Kumar, A., *TSM Nov. 2020* 606-613

Yaegashi, H., see Maslow, M.J., *TSM Feb. 2020* 42-52

Yan, Y., Wang, H., Tao, Q., Fan, W., Lin, T., and Xiao, Y., Noncyclic Scheduling of Multi-Cluster Tools With Residency Constraints Based on Pareto Optimization; *TSM Aug. 2020* 476-486

Yang, S., see Lu, H., *TSM Aug. 2020* 413-423

Yang, Z., see Wang, J., *TSM Nov. 2020* 587-596

Yeom, G.Y., see Jang, J.K., *TSM May 2020* 302-309

Yerubandi, G., see Bhat, T.S., *TSM Aug. 2020* 487-489

Yoon, H.G., see Kim, S.J., *TSM Feb. 2020* 53-61

Yoshitomi, S., see Tanaka, C., *TSM May 2020* 146-149

You, S., see Li, X., *TSM Nov. 2020* 534-538

Yu, J., and Guo, P., Run-to-Run Control of Chemical Mechanical Polishing Process Based on Deep Reinforcement Learning; *TSM Aug. 2020* 454-465

Yu, X., see Wu, D., *TSM Nov. 2020* 557-563

Yugma, C., see Chouichi, A., *TSM Feb. 2020* 86-95

Yuksek, N., see Bhat, T.S., *TSM May 2020* 291-294

Z

Zhakov, A., Zhu, H., Siegel, A., Rank, S., Schmidt, T., Fienhold, L., and Hummel, S., Application of ANN for Fault Detection in Overhead Transport Systems for Semiconductor Fab; *TSM Aug. 2020* 337-345

Zhan, X., Su, Y., Fu, Y., Chen, J., and Xu, H., Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femtosecond Laser Annealing; *TSM Feb. 2020* 116-120

Zhang, J., see Wang, J., *TSM Nov. 2020* 587-596

Zhao, M., see Li, X., *TSM Nov. 2020* 534-538

Zhu, H., see Zhakov, A., *TSM Aug. 2020* 337-345

Zhuang, J., see Guo, B., *TSM May 2020* 267-282

Zhuang, Y., see Gowda, A., *TSM Nov. 2020* 614-621

Ziarnetzky, T., Monch, L., and Uzsoy, R., Simulation-Based Performance Assessment of Production Planning Models With Safety Stock and Forecast Evolution in Semiconductor Wafer Fabrication; *TSM Feb. 2020* 1-12

SUBJECT INDEX

Numeric

1/f noise

Experimental Extraction of Impact of Depletion Capacitance on Low Frequency Noise in Sub-Micron n MOSFETs With Reverse Body Bias. *Tanaka, C., +, TSM May 2020* 146-149

5G mobile communication

Guest Editorial Special Section on the 2019 SEMI Advanced Semiconductor Manufacturing Conference. *Bickford, J.P., +, TSM Aug. 2020* 319-321

II-VI semiconductors

Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO_2 -ZnO Nanofibers. *Nien, Y., +, TSM May 2020* 295-301

Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. *Chou, J., +, TSM Feb. 2020* 121-127

A

Acoustic sensors

Development of Diaphragm and Microtunnel Structures for MEMS Piezoelectric Sensors. *Kumar, A., +, TSM Nov. 2020* 606-613

Actuators

Performance-Based Active Wafer Clamp Design for Wafer Heating Effects in EUV Lithography. *van den Hurk, D., +, TSM Aug. 2020* 424-432

Adhesion

Test Structures for Developing Packaging for Implantable Sensors. *Blair, E.O., +, TSM May 2020* 224-231

Amorphous semiconductors

Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femtosecond Laser Annealing. *Zhan, X., +, TSM Feb. 2020* 116-120

Artificial neural networks

Application of ANN for Fault Detection in Overhead Transport Systems for Semiconductor Fab. *Zhakov, A., +, TSM Aug. 2020* 337-345

Applying Taguchi's Method, Artificial Neural Network and Genetic Algorithm to Reduce the CoSi₂ Resistance Deviation of DRAM Products. *Lin, C., +, TSM Aug. 2020 404-412*

Guest Editorial Special Section on the 2019 SEMI Advanced Semiconductor Manufacturing Conference. *Bickford, J.P., +, TSM Aug. 2020 319-321*

Atomic layer deposition

An Investigation of Field-Effect Passivation Layer Characteristics Using Second Harmonic Generation Measurement. *Park, S., +, TSM Feb. 2020 109-115*

Conduction and Electric Field Effect in Ultra-Thin Tungsten Films. *van der Zouw, K., +, TSM May 2020 202-209*

Automatic optical inspection

Locally Adaptive Statistical Background Modeling With Deep Learning-Based False Positive Rejection for Defect Detection in Semiconductor Units. *Haddad, B.M., +, TSM Aug. 2020 357-372*

Automotive engineering

Guest Editorial Special Section on the 2019 SEMI Advanced Semiconductor Manufacturing Conference. *Bickford, J.P., +, TSM Aug. 2020 319-321*

B

BiCMOS integrated circuits

Characterization of eFuse Programming for Varying RF BiCMOS Technology Silicides. *Gebreselasie, E., +, TSM Aug. 2020 331-336*

Biomedical transducers

Test Structures for Developing Packaging for Implantable Sensors. *Blair, E.O., +, TSM May 2020 224-231*

Bipolar transistors

Bipolar Transistor Test Structures for Extracting Minority Carrier Lifetime in IGBTs. *Takeuchi, K., +, TSM May 2020 159-165*

Boron

Abnormal Silicon-Germanium (SiGe) Epitaxial Growth in FinFETs. *Bhat, T.S., +, TSM May 2020 291-294*

Buffer layers

Bipolar Transistor Test Structures for Extracting Minority Carrier Lifetime in IGBTs. *Takeuchi, K., +, TSM May 2020 159-165*

C

Cable insulation

Application of ANN for Fault Detection in Overhead Transport Systems for Semiconductor Fab. *Zhakov, A., +, TSM Aug. 2020 337-345*

Calibration

Layout Pattern Synthesis for Lithography Optimizations. *Kareem, P., +, TSM May 2020 283-290*

Carrier lifetime

Bipolar Transistor Test Structures for Extracting Minority Carrier Lifetime in IGBTs. *Takeuchi, K., +, TSM May 2020 159-165*

Carrier mobility

Measurement and Modeling of Ambient-Air-Induced Degradation in Organic Thin-Film Transistor. *Shintani, M., +, TSM May 2020 216-223*

Chemical mechanical polishing

Crack-Free Fabrication and Electrical Characterization of Coaxial Ultra-Low-Resistivity-Silicon Through-Silicon-Vias. *Luo, X., +, TSM Feb. 2020 103-108*

Chemical variables measurement

Deep Learning for Classification of the Chemical Composition of Particle Defects on Semiconductor Wafers. *O'Leary, J., +, TSM Feb. 2020 72-85*

Circuit oscillations

Measurement and Modeling of Ambient-Air-Induced Degradation in Organic Thin-Film Transistor. *Shintani, M., +, TSM May 2020 216-223*

Clamps

Control of Thermo-Mechanical Wafer Deformations in EUV Lithography Using an Active Wafer Clamp. *van den Hurk, D., +, TSM Feb. 2020 96-102*
Performance-Based Active Wafer Clamp Design for Wafer Heating Effects in EUV Lithography. *van den Hurk, D., +, TSM Aug. 2020 424-432*

Clean rooms

Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. *Lin, T., +, TSM May 2020 310-315*

Clustering methods

Variational Deep Clustering of Wafer Map Patterns. *Hwang, J., +, TSM Aug. 2020 466-475*

CMOS image sensors

An Investigation of Field-Effect Passivation Layer Characteristics Using Second Harmonic Generation Measurement. *Park, S., +, TSM Feb. 2020 109-115*

CMOS integrated circuits

Abnormal Silicon-Germanium (SiGe) Epitaxial Growth in FinFETs. *Bhat, T.S., +, TSM May 2020 291-294*

Extracting Voltage Dependence of BTI-induced Degradation Without Temporal Factors by Using BTI-Sensitive and BTI-Insensitive Ring Oscillators. *Kishida, R., +, TSM May 2020 174-179*

Two Transistors Voltage-Measurement-Based Test Structure for Fast MOS-FET Device Mismatch Characterization. *Brito, J.P.M., +, TSM May 2020 166-173*

CMOS technology

Characterization of eFuse Programming for Varying RF BiCMOS Technology Silicides. *Gebreselasie, E., +, TSM Aug. 2020 331-336*

Complexity theory

SMT2020—A Semiconductor Manufacturing Testbed. *Kopp, D., +, TSM Nov. 2020 522-531*

Computational complexity

Locally Adaptive Statistical Background Modeling With Deep Learning-Based False Positive Rejection for Defect Detection in Semiconductor Units. *Haddad, B.M., +, TSM Aug. 2020 357-372*

Computational modeling

A Deep Convolutional Neural Network for Wafer Defect Identification on an Imbalanced Dataset in Semiconductor Manufacturing Processes. *Saglai, M., +, TSM Aug. 2020 436-444*

Computerized instrumentation

Deep Learning for Classification of the Chemical Composition of Particle Defects on Semiconductor Wafers. *O'Leary, J., +, TSM Feb. 2020 72-85*

Contact resistance

Conduction and Electric Field Effect in Ultra-Thin Tungsten Films. *van der Zouw, K., +, TSM May 2020 202-209*

Dependability Assessment of Transfer Length Method to Extract the Metal–Graphene Contact Resistance. *Driussi, F., +, TSM May 2020 210-215*

Convolutional neural nets

A Semi-Supervised and Incremental Modeling Framework for Wafer Map Classification. *Kong, Y., +, TSM Feb. 2020 62-71*

Active Learning of Convolutional Neural Network for Cost-Effective Wafer Map Pattern Classification. *Shim, J., +, TSM May 2020 258-266*

Deep Learning for Classification of the Chemical Composition of Particle Defects on Semiconductor Wafers. *O'Leary, J., +, TSM Feb. 2020 72-85*

Convolutional neural networks

A Deep Convolutional Neural Network for Wafer Defect Identification on an Imbalanced Dataset in Semiconductor Manufacturing Processes. *Saglai, M., +, TSM Aug. 2020 436-444*

A Light-Weight Neural Network for Wafer Map Classification Based on Data Augmentation. *Tsai, T., +, TSM Nov. 2020 663-672*

CNN-Based Layout Segment Classification for Analysis of Layout-Induced Failures. *Nagamura, Y., +, TSM Nov. 2020 597-605*

Deep Learning-Based Domain Adaptation Method for Fault Diagnosis in Semiconductor Manufacturing. *Azamfar, M., +, TSM Aug. 2020 445-453*

Deformable Convolutional Networks for Efficient Mixed-Type Wafer Defect Pattern Recognition. *Wang, J., +, TSM Nov. 2020 587-596*

Increasing the Utilization of Deep Neural Networks for SEM Measurements Through Multiple Task Formulation and Visualization. *Chaudhary, N., +, TSM Aug. 2020 322-330*

Memory-Augmented Convolutional Neural Networks With Triplet Loss for Imbalanced Wafer Defect Pattern Classification. *Hyun, Y., +, TSM Nov. 2020 622-634*

- Qualitative and Quantitative Analysis of Multi-Pattern Wafer Bin Maps.** Kong, Y., +, *TSM Nov. 2020* 578-586
- Support Weighted Ensemble Model for Open Set Recognition of Wafer Map Defects.** Jang, J., +, *TSM Nov. 2020* 635-643
- Copper**
- Surface Copper Voids in BEOL Copper Metal Layers. Bhat, T.S., +, *TSM Aug. 2020* 433-435
- Crystallization**
- Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femtosecond Laser Annealing. Zhan, X., +, *TSM Feb. 2020* 116-120
- Crystals**
- Development of a World Class Silicon Carbide Substrate Manufacturing Capability. Blevins, J.D., *TSM Nov. 2020* 539-545
- D**
- Dark current**
- Process Optimization and Microwave Model of GaAs Photodiodes for 50 Gb/s Optical Links. Wu, D., +, *TSM Nov. 2020* 557-563
- Data compression**
- Advanced Low Pin Count Test Architecture for Efficient Multi-Site Testing. Seo, S., +, *TSM Aug. 2020* 391-403
- Data models**
- Semi-Supervised Multi-Label Learning for Classification of Wafer Bin Maps With Mixed-Type Defect Patterns. Lee, H., +, *TSM Nov. 2020* 653-662
- Decision making**
- Run-to-Run Control of Chemical Mechanical Polishing Process Based on Deep Reinforcement Learning. Yu, J., +, *TSM Aug. 2020* 454-465
- Simulation-Based Performance Assessment of Production Planning Models With Safety Stock and Forecast Evolution in Semiconductor Wafer Fabrication. Ziarnetzky, T., +, *TSM Feb. 2020* 1-12
- Decision support systems**
- Which Spare Parts Service Measure to Choose for a Front-End Wafer Fab?. Lamghari-Idrissi, D., +, *TSM Nov. 2020* 504-510
- Deep learning**
- A Deep Convolutional Neural Network for Wafer Defect Identification on an Imbalanced Dataset in Semiconductor Manufacturing Processes. Saqlain, M., +, *TSM Aug. 2020* 436-444
- A Light-Weight Neural Network for Wafer Map Classification Based on Data Augmentation. Tsai, T., +, *TSM Nov. 2020* 663-672
- Deep Learning-Based Domain Adaptation Method for Fault Diagnosis in Semiconductor Manufacturing. Azamfar, M., +, *TSM Aug. 2020* 445-453
- Deformation**
- Control of Thermo-Mechanical Wafer Deformations in EUV Lithography Using an Active Wafer Clamp. van den Hurk, D., +, *TSM Feb. 2020* 96-102
- Design for manufacture**
- CNN-Based Layout Segment Classification for Analysis of Layout-Induced Failures. Nagamura, Y., +, *TSM Nov. 2020* 597-605
- Design for testability**
- Advanced Low Pin Count Test Architecture for Efficient Multi-Site Testing. Seo, S., +, *TSM Aug. 2020* 391-403
- Detectors**
- Extension of CD-TEM Towards 3D Elemental Mapping. Baumann, F.H., +, *TSM Aug. 2020* 346-351
- Diamond**
- A Novel Method to Quantify Conditioner-to-Conditioner Variation and Predict Conditioner Lifetime and Process Failure Mode in Chemical Mechanical Planarization (CMP) Environment. Gowda, A., +, *TSM Nov. 2020* 614-621
- Dielectric materials**
- Plasma Induced Damage Reduction of Ultra Low-k Dielectric by Using Source Pulsed Plasma Etching for Next BEOL Interconnect Manufacturing. Jang, J.K., +, *TSM May 2020* 302-309
- Diffraction**
- Enhancement of Diffraction-Based Overlay Model for Overlay Target With Asymmetric Sidewall. Su, C., +, *TSM Aug. 2020* 373-382
- Discrete cosine transforms**
- Layout Pattern Synthesis for Lithography Optimizations. Kareem, P., +, *TSM May 2020* 283-290
- Discrete event simulation**
- SMT2020—A Semiconductor Manufacturing Testbed. Kopp, D., +, *TSM Nov. 2020* 522-531
- Dispatching**
- A Sequential Search Method of Dispatching Rules for Scheduling of LCD Manufacturing Systems. Lee, J., +, *TSM Nov. 2020* 496-503
- Distributed control**
- Control of Thermo-Mechanical Wafer Deformations in EUV Lithography Using an Active Wafer Clamp. van den Hurk, D., +, *TSM Feb. 2020* 96-102
- Drying**
- Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. Lin, T., +, *TSM May 2020* 310-315
- Dye-sensitized solar cells**
- Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. Nien, Y., +, *TSM May 2020* 295-301
- Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. Chou, J., +, *TSM Feb. 2020* 121-127
- Dynamic scheduling**
- Deep Learning-Based Dynamic Scheduling for Semiconductor Manufacturing With High Uncertainty of Automated Material Handling System Capability. Kim, H., +, *TSM Feb. 2020* 13-22
- E**
- Electrets**
- A Method to Determine the Electret Charge Potential of MEMS Vibrational Energy Harvester Using Pure-White Noise. Mitsuya, H., +, *TSM May 2020* 180-186
- Electric breakdown**
- Design Impacts of Back-End-of-Line Line Edge Roughness. Chu, E., +, *TSM Feb. 2020* 32-41
- Electric field effects**
- Conduction and Electric Field Effect in Ultra-Thin Tungsten Films. van der Zouw, K., +, *TSM May 2020* 202-209
- Electric resistance measurement**
- Dependability Assessment of Transfer Length Method to Extract the Metal–Graphene Contact Resistance. Driussi, F., +, *TSM May 2020* 210-215
- Resistance Measurement Platform for Statistical Analysis of Emerging Memory Materials. Maeda, T., +, *TSM May 2020* 232-239
- Electrical resistivity**
- Conduction and Electric Field Effect in Ultra-Thin Tungsten Films. van der Zouw, K., +, *TSM May 2020* 202-209
- Electrochemical electrodes**
- Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. Nien, Y., +, *TSM May 2020* 295-301
- Optimization of Nafion Polymer Electrolyte Membrane Design and Micro-fabrication. Marland, J.R.K., +, *TSM May 2020* 196-201
- Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. Chou, J., +, *TSM Feb. 2020* 121-127
- Electrochemical impedance spectroscopy**
- Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. Nien, Y., +, *TSM May 2020* 295-301
- Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. Chou, J., +, *TSM Feb. 2020* 121-127
- Electrochemical sensors**
- Optimization of Nafion Polymer Electrolyte Membrane Design and Micro-fabrication. Marland, J.R.K., +, *TSM May 2020* 196-201
- Electroluminescence**
- A Study on the Impact of Mid-Gap Defects on Vertical GaN Diodes. Ebrish, M.A., +, *TSM Nov. 2020* 546-551
- Electrolytes**
- Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. Nien, Y., +, *TSM May 2020* 295-301

Electromigration

- Design Impacts of Back-End-of-Line Line Edge Roughness. *Chu, E., +, TSM Feb. 2020* 32-41
 Surface Copper Voids in BEOL Copper Metal Layers. *Bhat, T.S., +, TSM Aug. 2020* 433-435

Electron beams

- Electron Beam Inspection in Physical Mode: Overpolish Monitoring of RMG CMP. *Hafer, R.F., +, TSM Aug. 2020* 352-356

Electron-hole recombination

- Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. *Nien, Y., +, TSM May 2020* 295-301

Electronic engineering computing

- A Semi-Supervised and Incremental Modeling Framework for Wafer Map Classification. *Kong, Y., +, TSM Feb. 2020* 62-71

- Color Difference Detection of Polysilicon Wafers Using Optimized Support Vector Machine by Magnetic Bacteria Optimization Algorithm With Elitist Strategy. *Guo, B., +, TSM May 2020* 267-282

- Layout Pattern Synthesis for Lithography Optimizations. *Kareem, P., +, TSM May 2020* 283-290

Electronic equipment testing

- Guest Editorial Special Section on the International Conference on Micro-electronic Test Structures (ICMTS). *Sekitani, T., TSM May 2020* 144-145

Electronics packaging

- Test Structures for Developing Packaging for Implantable Sensors. *Blair, E.O., +, TSM May 2020* 224-231

Electrospinning

- Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. *Nien, Y., +, TSM May 2020* 295-301

Electrostatic actuators

- An On-Chip Micromachined Test Structure to Study the Tribological Behavior of Deep-RIE MEMS Sidewall Surfaces. *Reddy, R.R., +, TSM May 2020* 187-195

- Control of Thermo-Mechanical Wafer Deformations in EUV Lithography Using an Active Wafer Clamp. *van den Hurk, D., +, TSM Feb. 2020* 96-102

Electrostatic devices

- Control of Thermo-Mechanical Wafer Deformations in EUV Lithography Using an Active Wafer Clamp. *van den Hurk, D., +, TSM Feb. 2020* 96-102

Electrostatic discharges

- Characterization of eFuse Programming for Varying RF BiCMOS Technology Silicides. *Gebreselasie, E., +, TSM Aug. 2020* 331-336

Electrostatics

- Performance-Based Active Wafer Clamp Design for Wafer Heating Effects in EUV Lithography. *van den Hurk, D., +, TSM Aug. 2020* 424-432

Elemental semiconductors

- An On-Chip Micromachined Test Structure to Study the Tribological Behavior of Deep-RIE MEMS Sidewall Surfaces. *Reddy, R.R., +, TSM May 2020* 187-195

- Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femtosecond Laser Annealing. *Zhan, X., +, TSM Feb. 2020* 116-120

- Resistance Measurement Platform for Statistical Analysis of Emerging Memory Materials. *Maeda, T., +, TSM May 2020* 232-239

Ellipsometry

- Conduction and Electric Field Effect in Ultra-Thin Tungsten Films. *van der Zouw, K., +, TSM May 2020* 202-209

Encapsulation

- Test Structures for Developing Packaging for Implantable Sensors. *Blair, E.O., +, TSM May 2020* 224-231

Energy harvesting

- A Method to Determine the Electret Charge Potential of MEMS Vibrational Energy Harvester Using Pure-White Noise. *Mitsuya, H., +, TSM May 2020* 180-186

Epitaxial growth

- Integration of 650 V GaN Power ICs on 200 mm Engineered Substrates. *Li, X., +, TSM Nov. 2020* 534-538

Error correction

- Hybrid Overlay Modeling for Field-by-Field Error Correction in the Photolithography Process. *Kim, S.J., +, TSM Feb. 2020* 53-61

Etching

- Development of Diaphragm and Microtunnel Structures for MEMS Piezoelectric Sensors. *Kumar, A., +, TSM Nov. 2020* 606-613

- Sensitivity Enhancement of SiO₂ Plasma Etching Endpoint Detection Using Modified Gaussian Mixture Model. *Lee, S., +, TSM May 2020* 252-257

Extreme ultraviolet lithography

- Performance-Based Active Wafer Clamp Design for Wafer Heating Effects in EUV Lithography. *van den Hurk, D., +, TSM Aug. 2020* 424-432

F**Fabrication**

- A Deep Convolutional Neural Network for Wafer Defect Identification on an Imbalanced Dataset in Semiconductor Manufacturing Processes. *Saglai, M., +, TSM Aug. 2020* 436-444

- Advanced Quality Control (AQC) of Silicon Wafer Specifications for Yield Enhancement for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020* 569-577

- Development of Diaphragm and Microtunnel Structures for MEMS Piezoelectric Sensors. *Kumar, A., +, TSM Nov. 2020* 606-613

- Elimination of Metal Fencing by Optimizing Evaporator Dome Alignment. *Cheng, K., TSM Nov. 2020* 564-568

- Memory-Augmented Convolutional Neural Networks With Triplet Loss for Imbalanced Wafer Defect Pattern Classification. *Hyun, Y., +, TSM Nov. 2020* 622-634

- TestDNA: Novel Wafer Defect Signature for Diagnosis and Pattern Recognition. *Li, K.S., +, TSM Aug. 2020* 383-390

- Which Spare Parts Service Measure to Choose for a Front-End Wafer Fab?. *Lamghari-Idrissi, D., +, TSM Nov. 2020* 504-510

Failure analysis

- A Study on the Impact of Mid-Gap Defects on Vertical GaN Diodes. *Ebrish, M.A., +, TSM Nov. 2020* 546-551

- CNN-Based Layout Segment Classification for Analysis of Layout-Induced Failures. *Nagamura, Y., +, TSM Nov. 2020* 597-605

- Deep Learning for Classification of the Chemical Composition of Particle Defects on Semiconductor Wafers. *O'Leary, J., +, TSM Feb. 2020* 72-85

- Extension of CD-TEM Towards 3D Elemental Mapping. *Baumann, F.H., +, TSM Aug. 2020* 346-351

Fast Fourier transforms

- A Method to Determine the Electret Charge Potential of MEMS Vibrational Energy Harvester Using Pure-White Noise. *Mitsuya, H., +, TSM May 2020* 180-186

Fault detection

- Application of ANN for Fault Detection in Overhead Transport Systems for Semiconductor Fab. *Zhakov, A., +, TSM Aug. 2020* 337-345

- Guest Editorial Special Section on the 2019 SEMI Advanced Semiconductor Manufacturing Conference. *Bickford, J.P., +, TSM Aug. 2020* 319-321

Fault diagnosis

- Chamber-to-Chamber Discrepancy Detection in Semiconductor Manufacturing. *Chouichi, A., +, TSM Feb. 2020* 86-95

- Deep Learning-Based Domain Adaptation Method for Fault Diagnosis in Semiconductor Manufacturing. *Azamfar, M., +, TSM Aug. 2020* 445-453

Feature extraction

- A Deep Convolutional Neural Network for Wafer Defect Identification on an Imbalanced Dataset in Semiconductor Manufacturing Processes. *Saglai, M., +, TSM Aug. 2020* 436-444

- A Light-Weight Neural Network for Wafer Map Classification Based on Data Augmentation. *Tsai, T., +, TSM Nov. 2020* 663-672

- Color Difference Detection of Polysilicon Wafers Using Optimized Support Vector Machine by Magnetic Bacteria Optimization Algorithm With Elitist Strategy. *Guo, B., +, TSM May 2020* 267-282

- Data-Driven Framework for Tool Health Monitoring and Maintenance Strategy for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020* 644-652

- Deep Learning-Based Domain Adaptation Method for Fault Diagnosis in Semiconductor Manufacturing. *Azamfar, M., +, TSM Aug. 2020* 445-453

- Deformable Convolutional Networks for Efficient Mixed-Type Wafer Defect Pattern Recognition. *Wang, J., +, TSM Nov. 2020* 587-596

- Locally Adaptive Statistical Background Modeling With Deep Learning-Based False Positive Rejection for Defect Detection in Semiconductor Units. *Haddad, B.M., +, TSM Aug. 2020* 357-372
- Memory-Augmented Convolutional Neural Networks With Triplet Loss for Imbalanced Wafer Defect Pattern Classification. *Hyun, Y., +, TSM Nov. 2020* 622-634
- Qualitative and Quantitative Analysis of Multi-Pattern Wafer Bin Maps. *Kong, Y., +, TSM Nov. 2020* 578-586
- Semi-Supervised Multi-Label Learning for Classification of Wafer Bin Maps With Mixed-Type Defect Patterns. *Lee, H., +, TSM Nov. 2020* 653-662
- Support Weighted Ensemble Model for Open Set Recognition of Wafer Map Defects. *Jang, J., +, TSM Nov. 2020* 635-643
- TestDNA: Novel Wafer Defect Signature for Diagnosis and Pattern Recognition. *Li, K.S., +, TSM Aug. 2020* 383-390
- Variational Deep Clustering of Wafer Map Patterns. *Hwang, J., +, TSM Aug. 2020* 466-475

Feedforward

Control of Thermo-Mechanical Wafer Deformations in EUV Lithography Using an Active Wafer Clamp. *van den Hurk, D., +, TSM Feb. 2020* 96-102

Feedforward neural networks

Enhancement of Diffraction-Based Overlay Model for Overlay Target With Asymmetric Sidewall. *Su, C., +, TSM Aug. 2020* 373-382

Ferroelectric storage

Resistance Measurement Platform for Statistical Analysis of Emerging Memory Materials. *Maeda, T., +, TSM May 2020* 232-239

Field effect transistors

Characterization of eFuse Programming for Varying RF BiCMOS Technology Silicides. *Gebreselasie, E., +, TSM Aug. 2020* 331-336

Field emission electron microscopy

Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. *Chou, J., +, TSM Feb. 2020* 121-127

Flow visualization

Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. *Lin, T., +, TSM May 2020* 310-315

Forecasting theory

Simulation-Based Performance Assessment of Production Planning Models With Safety Stock and Forecast Evolution in Semiconductor Wafer Fabrication. *Ziarnetzky, T., +, TSM Feb. 2020* 1-12

Friction

An On-Chip Micromachined Test Structure to Study the Tribological Behavior of Deep-RIE MEMS Sidewall Surfaces. *Reddy, R.R., +, TSM May 2020* 187-195

Fuses

Characterization of eFuse Programming for Varying RF BiCMOS Technology Silicides. *Gebreselasie, E., +, TSM Aug. 2020* 331-336

G**Gallium nitride**

A Study on the Impact of Mid-Gap Defects on Vertical GaN Diodes. *Ebrish, M.A., +, TSM Nov. 2020* 546-551

Development of a World Class Silicon Carbide Substrate Manufacturing Capability. *Blevins, J.D., TSM Nov. 2020* 539-545

Guest Editorial Special Section on the 2020 International Conference on Compound Semiconductor Manufacturing Technology (CS-MANTECH). *Fay, P., TSM Nov. 2020* 532-533

Impact of Water Content in NMP on Ohmic Contacts in GaN HEMT Technologies. *Hugger, A., +, TSM Nov. 2020* 552-556

Integration of 650 V GaN Power ICs on 200 mm Engineered Substrates. *Li, X., +, TSM Nov. 2020* 534-538

Gaussian mixture model

Variational Deep Clustering of Wafer Map Patterns. *Hwang, J., +, TSM Aug. 2020* 466-475

Gaussian processes

Sensitivity Enhancement of SiO₂ Plasma Etching Endpoint Detection Using Modified Gaussian Mixture Model. *Lee, S., +, TSM May 2020* 252-257

Ge-Si alloys

Abnormal Silicon-Germanium (SiGe) Epitaxial Growth in FinFETs. *Bhat, T.S., +, TSM May 2020* 291-294

Generative adversarial networks

Combination of Convolutional and Generative Adversarial Networks for Defect Image Demoiréing of Thin-Film Transistor Liquid-Crystal Display Image. *Lu, H., +, TSM Aug. 2020* 413-423

Genetic algorithms

A Simple Model of Capacity Contention During New Product Introductions. *Manda, A.B., +, TSM May 2020* 240-251

Applying Taguchi's Method, Artificial Neural Network and Genetic Algorithm to Reduce the CoSiZ Resistance Deviation of DRAM Products. *Lin, C., +, TSM Aug. 2020* 404-412

Gold

Elimination of Metal Fencing by Optimizing Evaporator Dome Alignment. *Cheng, K., TSM Nov. 2020* 564-568

Grain size

Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femto-second Laser Annealing. *Zhan, X., +, TSM Feb. 2020* 116-120

Graphene

Dependability Assessment of Transfer Length Method to Extract the Metal–Graphene Contact Resistance. *Driussi, F., +, TSM May 2020* 210-215

Graphene compounds

Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. *Chou, J., +, TSM Feb. 2020* 121-127

Grinding

Crack-Free Fabrication and Electrical Characterization of Coaxial Ultra-Low-Resistivity-Silicon Through-Silicon-Vias. *Luo, X., +, TSM Feb. 2020* 103-108

H**Health care**

Test Structures for Developing Packaging for Implantable Sensors. *Blair, E.O., +, TSM May 2020* 224-231

HEMTs

Development of a World Class Silicon Carbide Substrate Manufacturing Capability. *Blevins, J.D., TSM Nov. 2020* 539-545

Impact of Water Content in NMP on Ohmic Contacts in GaN HEMT Technologies. *Hugger, A., +, TSM Nov. 2020* 552-556

Integration of 650 V GaN Power ICs on 200 mm Engineered Substrates. *Li, X., +, TSM Nov. 2020* 534-538

High-speed optical techniques

Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femto-second Laser Annealing. *Zhan, X., +, TSM Feb. 2020* 116-120

Humidity

Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. *Lin, T., +, TSM May 2020* 310-315

Humidity sensors

Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. *Lin, T., +, TSM May 2020* 310-315

I**Image classification**

CNN-Based Layout Segment Classification for Analysis of Layout-Induced Failures. *Nagamura, Y., +, TSM Nov. 2020* 597-605

Color Difference Detection of Polysilicon Wafers Using Optimized Support Vector Machine by Magnetic Bacteria Optimization Algorithm With Elitist Strategy. *Guo, B., +, TSM May 2020* 267-282

Image color analysis

Color Difference Detection of Polysilicon Wafers Using Optimized Support Vector Machine by Magnetic Bacteria Optimization Algorithm With Elitist Strategy. *Guo, B., +, TSM May 2020* 267-282

TestDNA: Novel Wafer Defect Signature for Diagnosis and Pattern Recognition. *Li, K.S., +, TSM Aug. 2020* 383-390

Image edge detection

Guest Editorial Special Section on the 2019 SEMI Advanced Semiconductor Manufacturing Conference. *Bickford, J.P., +, TSM Aug. 2020 319-321*

Increasing the Utilization of Deep Neural Networks for SEM Measurements Through Multiple Task Formulation and Visualization. *Chaudhary, N., +, TSM Aug. 2020 322-330*

Image quality

Combination of Convolutional and Generative Adversarial Networks for Defect Image Demoiréing of Thin-Film Transistor Liquid-Crystal Display Image. *Lu, H., +, TSM Aug. 2020 413-423*

Image restoration

Layout Pattern Synthesis for Lithography Optimizations. *Kareem, P., +, TSM May 2020 283-290*

Image segmentation

Color Difference Detection of Polysilicon Wafers Using Optimized Support Vector Machine by Magnetic Bacteria Optimization Algorithm With Elitist Strategy. *Guo, B., +, TSM May 2020 267-282*

Image texture

Color Difference Detection of Polysilicon Wafers Using Optimized Support Vector Machine by Magnetic Bacteria Optimization Algorithm With Elitist Strategy. *Guo, B., +, TSM May 2020 267-282*

Impedance matching

Crack-Free Fabrication and Electrical Characterization of Coaxial Ultra-Low-Resistivity-Silicon Through-Silicon-Vias. *Luo, X., +, TSM Feb. 2020 103-108*

Indium tin oxide

Critical Dimension Bimodality Both Within Wafer and Within Die. *Bhat, T.S., +, TSM Aug. 2020 487-489*

Inspection

Combination of Convolutional and Generative Adversarial Networks for Defect Image Demoiréing of Thin-Film Transistor Liquid-Crystal Display Image. *Lu, H., +, TSM Aug. 2020 413-423*

Deep Learning-Based Domain Adaptation Method for Fault Diagnosis in Semiconductor Manufacturing. *Azamfar, M., +, TSM Aug. 2020 445-453*

Electron Beam Inspection in Physical Mode: Overpolish Monitoring of RMG CMP. *Hafer, R.F., +, TSM Aug. 2020 352-356*

Guest Editorial Special Section on the 2019 SEMI Advanced Semiconductor Manufacturing Conference. *Bickford, J.P., +, TSM Aug. 2020 319-321*

Inspection of Stochastic Defects With Broadband Plasma Optical Systems for Extreme Ultraviolet (EUV) Lithography. *Sah, K., +, TSM Feb. 2020 23-31*

Locally Adaptive Statistical Background Modeling With Deep Learning-Based False Positive Rejection for Defect Detection in Semiconductor Units. *Haddad, B.M., +, TSM Aug. 2020 357-372*

Insulated gate bipolar transistors

Bipolar Transistor Test Structures for Extracting Minority Carrier Lifetime in IGBTs. *Takeuchi, K., +, TSM May 2020 159-165*

Insulating materials

Test Structures for Developing Packaging for Implantable Sensors. *Blair, E.O., +, TSM May 2020 224-231*

Integrated circuit interconnections

Crack-Free Fabrication and Electrical Characterization of Coaxial Ultra-Low-Resistivity-Silicon Through-Silicon-Vias. *Luo, X., +, TSM Feb. 2020 103-108*

Plasma Induced Damage Reduction of Ultra Low-k Dielectric by Using Source Pulsed Plasma Etching for Next BEOL Interconnect Manufacturing. *Jang, J.K., +, TSM May 2020 302-309*

Integrated circuit manufacture

A Novel Method to Quantify Conditioner-to-Conditioner Variation and Predict Conditioner Lifetime and Process Failure Mode in Chemical Mechanical Planarization (CMP) Environment. *Gowda, A., +, TSM Nov. 2020 614-621*

Matheuristics for Qualification Management Decisions in Wafer fabs. *Kopp, D., +, TSM Nov. 2020 511-521*

Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. *Lin, T., +, TSM May 2020 310-315*

Simulation-Based Performance Assessment of Production Planning Models With Safety Stock and Forecast Evolution in Semiconductor Wafer Fabrication. *Ziarnetzky, T., +, TSM Feb. 2020 1-12*

Integrated circuit measurement

Extracting Voltage Dependence of BTI-induced Degradation Without Temporal Factors by Using BTI-Sensitive and BTI-Insensitive Ring Oscillators. *Kishida, R., +, TSM May 2020 174-179*

Integrated circuit modeling

Guest Editorial Special Section on the International Conference on Microelectronic Test Structures (ICMTS). *Sekitani, T., TSM May 2020 144-145*

Semi-Supervised Multi-Label Learning for Classification of Wafer Bin Maps With Mixed-Type Defect Patterns. *Lee, H., +, TSM Nov. 2020 653-662*

Integrated circuit reliability

Extracting Voltage Dependence of BTI-induced Degradation Without Temporal Factors by Using BTI-Sensitive and BTI-Insensitive Ring Oscillators. *Kishida, R., +, TSM May 2020 174-179*

Integrated circuit testing

Extracting Voltage Dependence of BTI-induced Degradation Without Temporal Factors by Using BTI-Sensitive and BTI-Insensitive Ring Oscillators. *Kishida, R., +, TSM May 2020 174-179*

Integrated circuits

Advanced Quality Control (AQC) of Silicon Wafer Specifications for Yield Enhancement for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020 569-577*

Deformable Convolutional Networks for Efficient Mixed-Type Wafer Defect Pattern Recognition. *Wang, J., +, TSM Nov. 2020 587-596*

Integration of 650 V GaN Power ICs on 200 mm Engineered Substrates. *Li, X., +, TSM Nov. 2020 534-538*

Inverse transforms

A Method to Determine the Electret Charge Potential of MEMS Vibrational Energy Harvester Using Pure-White Noise. *Mitsuya, H., +, TSM May 2020 180-186*

Layout Pattern Synthesis for Lithography Optimizations. *Kareem, P., +, TSM May 2020 283-290*

J**Job shop scheduling**

A Sequential Search Method of Dispatching Rules for Scheduling of LCD Manufacturing Systems. *Lee, J., +, TSM Nov. 2020 496-503*

Noncyclic Scheduling of Multi-Cluster Tools With Residency Constraints Based on Pareto Optimization. *Yan, Y., +, TSM Aug. 2020 476-486*

L**Laminar flow**

Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. *Lin, T., +, TSM May 2020 310-315*

Large scale integration

CNN-Based Layout Segment Classification for Analysis of Layout-Induced Failures. *Nagamura, Y., +, TSM Nov. 2020 597-605*

Laser beam annealing

Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femtosecond Laser Annealing. *Zhan, X., +, TSM Feb. 2020 116-120*

Laser beams

Elimination of Metal Fencing by Optimizing Evaporator Dome Alignment. *Cheng, K., TSM Nov. 2020 564-568*

Learning (artificial intelligence)

Active Learning of Convolutional Neural Network for Cost-Effective Wafer Map Pattern Classification. *Shim, J., +, TSM May 2020 258-266*

Deep Learning for Classification of the Chemical Composition of Particle Defects on Semiconductor Wafers. *O'Leary, J., +, TSM Feb. 2020 72-85*

Deep Learning-Based Dynamic Scheduling for Semiconductor Manufacturing With High Uncertainty of Automated Material Handling System Capability. *Kim, H., +, TSM Feb. 2020 13-22*

Layout Pattern Synthesis for Lithography Optimizations. *Kareem, P., +, TSM May 2020 283-290*

Least squares approximations

Chamber-to-Chamber Discrepancy Detection in Semiconductor Manufacturing. *Chouichi, A., +, TSM Feb. 2020* 86-95

Linear programming

Matheuristics for Qualification Management Decisions in Wafer Fabs. *Kopp, D., +, TSM Nov. 2020* 511-521

Liquid crystal displays

A Sequential Search Method of Dispatching Rules for Scheduling of LCD Manufacturing Systems. *Lee, J., +, TSM Nov. 2020* 496-503

Combination of Convolutional and Generative Adversarial Networks for Defect Image Demoiréing of Thin-Film Transistor Liquid-Crystal Display Image. *Lu, H., +, TSM Aug. 2020* 413-423

TFT-LCD Contrast Ratio Improvement by Using Design for Six Sigma Disciplines. *Su, F., +, TSM Feb. 2020* 128-139

Lithography

Critical Dimension Bimodality Both Within Wafer and Within Die. *Bhat, T.S., +, TSM Aug. 2020* 487-489

Log normal distribution

Statistical Extraction of Normally and Lognormally Distributed Model Parameters for Power MOSFETs. *Tsukamoto, H., +, TSM May 2020* 150-158

Low-k dielectric thin films

Plasma Induced Damage Reduction of Ultra Low-k Dielectric by Using Source Pulsed Plasma Etching for Next BEOL Interconnect Manufacturing. *Jang, J.K., +, TSM May 2020* 302-309

M**Machine learning**

CNN-Based Layout Segment Classification for Analysis of Layout-Induced Failures. *Nagamura, Y., +, TSM Nov. 2020* 597-605

Deep Learning-Based Domain Adaptation Method for Fault Diagnosis in Semiconductor Manufacturing. *Azamfar, M., +, TSM Aug. 2020* 445-453

Deformable Convolutional Networks for Efficient Mixed-Type Wafer Defect Pattern Recognition. *Wang, J., +, TSM Nov. 2020* 587-596

Locally Adaptive Statistical Background Modeling With Deep Learning-Based False Positive Rejection for Defect Detection in Semiconductor Units. *Haddad, B.M., +, TSM Aug. 2020* 357-372

Maintenance engineering

Data-Driven Framework for Tool Health Monitoring and Maintenance Strategy for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020* 644-652

Which Spare Parts Service Measure to Choose for a Front-End Wafer Fab?. *Lamghari-Idrissi, D., +, TSM Nov. 2020* 504-510

Manufacturing

Impact of Water Content in NMP on Ohmic Contacts in GaN HEMT Technologies. *Hugger, A., +, TSM Nov. 2020* 552-556

Manufacturing processes

A Semi-Supervised and Incremental Modeling Framework for Wafer Map Classification. *Kong, Y., +, TSM Feb. 2020* 62-71

Manufacturing systems

A Sequential Search Method of Dispatching Rules for Scheduling of LCD Manufacturing Systems. *Lee, J., +, TSM Nov. 2020* 496-503

Matheuristics for Qualification Management Decisions in Wafer Fabs. *Kopp, D., +, TSM Nov. 2020* 511-521

Masks

Design Impacts of Back-End-of-Line Line Edge Roughness. *Chu, E., +, TSM Feb. 2020* 32-41

Inspection of Stochastic Defects With Broadband Plasma Optical Systems for Extreme Ultraviolet (EUV) Lithography. *Sah, K., +, TSM Feb. 2020* 23-31

Plasma Induced Damage Reduction of Ultra Low-k Dielectric by Using Source Pulsed Plasma Etching for Next BEOL Interconnect Manufacturing. *Jang, J.K., +, TSM May 2020* 302-309

Materials handling

Application of ANN for Fault Detection in Overhead Transport Systems for Semiconductor Fab. *Zhakov, A., +, TSM Aug. 2020* 337-345

Materials handling equipment

Deep Learning-Based Dynamic Scheduling for Semiconductor Manufacturing With High Uncertainty of Automated Material Handling System Capability. *Kim, H., +, TSM Feb. 2020* 13-22

Mathematical model

A Novel Method to Quantify Conditioner-to-Conditioner Variation and Predict Conditioner Lifetime and Process Failure Mode in Chemical Mechanical Planarization (CMP) Environment. *Gowda, A., +, TSM Nov. 2020* 614-621

Meetings

Guest Editorial Special Section on the 2019 SEMI Advanced Semiconductor Manufacturing Conference. *Bickford, J.P., +, TSM Aug. 2020* 319-321

Guest Editorial Special Section on the 2020 International Conference on Compound Semiconductor Manufacturing Technology (CS-MANTECH). *Fay, P., TSM Nov. 2020* 532-533

Guest Editorial Special Section on the International Conference on Microelectronic Test Structures (ICMTS). *Sekitani, T., TSM May 2020* 144-145

Guest Editorial Special Section—Papers From the 2019 MASM/WSC Conference. *Fowler, J.W., +, TSM Nov. 2020* 493-495

Membranes

Optimization of Nafion Polymer Electrolyte Membrane Design and Microfabrication. *Marland, J.R.K., +, TSM May 2020* 196-201

Memory modules

Memory-Augmented Convolutional Neural Networks With Triplet Loss for Imbalanced Wafer Defect Pattern Classification. *Hyun, Y., +, TSM Nov. 2020* 622-634

Metallic thin films

Conduction and Electric Field Effect in Ultra-Thin Tungsten Films. *van der Zouw, K., +, TSM May 2020* 202-209

Metallization

Elimination of Metal Fencing by Optimizing Evaporator Dome Alignment. *Cheng, K., TSM Nov. 2020* 564-568

Metrology

Enhancement of Diffraction-Based Overlay Model for Overlay Target With Asymmetric Sidewall. *Su, C., +, TSM Aug. 2020* 373-382

Extension of CD-TEM Towards 3D Elemental Mapping. *Baumann, F.H., +, TSM Aug. 2020* 346-351

Microcracks

Crack-Free Fabrication and Electrical Characterization of Coaxial Ultra-Low-Resistivity-Silicon Through-Silicon-Vias. *Luo, X., +, TSM Feb. 2020* 103-108

Microelectronics

Guest Editorial Special Section on the International Conference on Microelectronic Test Structures (ICMTS). *Sekitani, T., TSM May 2020* 144-145

Microfabrication

Optimization of Nafion Polymer Electrolyte Membrane Design and Microfabrication. *Marland, J.R.K., +, TSM May 2020* 196-201

Test Structures for Developing Packaging for Implantable Sensors. *Blair, E.O., +, TSM May 2020* 224-231

Micromachining

An On-Chip Micromachined Test Structure to Study the Tribological Behavior of Deep-RIE MEMS Sidewall Surfaces. *Reddy, R.R., +, TSM May 2020* 187-195

Development of Diaphragm and Microtunnel Structures for MEMS Piezoelectric Sensors. *Kumar, A., +, TSM Nov. 2020* 606-613

Micromechanical devices

A Method to Determine the Electret Charge Potential of MEMS Vibrational Energy Harvester Using Pure-White Noise. *Mitsuya, H., +, TSM May 2020* 180-186

Microsensors

An On-Chip Micromachined Test Structure to Study the Tribological Behavior of Deep-RIE MEMS Sidewall Surfaces. *Reddy, R.R., +, TSM May 2020* 187-195

Test Structures for Developing Packaging for Implantable Sensors. *Blair, E.O., +, TSM May 2020* 224-231

Microwave measurement

Process Optimization and Microwave Model of GaAs Photodiodes for 50 Gb/s Optical Links. *Wu, D., +, TSM Nov. 2020* 557-563

Minority carriers

Bipolar Transistor Test Structures for Extracting Minority Carrier Lifetime in IGBTs. *Takeuchi, K., +, TSM May 2020 159-165*

Modeling

Guest Editorial Special Section—Papers From the 2019 MASM/WSC Conference. *Fowler, J.W., +, TSM Nov. 2020 493-495*

Monitoring

Data-Driven Framework for Tool Health Monitoring and Maintenance Strategy for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020 644-652*

Electron Beam Inspection in Physical Mode: Overpolish Monitoring of RMG CMP. *Hafer, R.F., +, TSM Aug. 2020 352-356*

Qualitative and Quantitative Analysis of Multi-Pattern Wafer Bin Maps. *Kong, Y., +, TSM Nov. 2020 578-586*

MOSFET

Abnormal Silicon-Germanium (SiGe) Epitaxial Growth in FinFETs. *Bhat, T.S., +, TSM May 2020 291-294*

Development of a World Class Silicon Carbide Substrate Manufacturing Capability. *Blevins, J.D., TSM Nov. 2020 539-545*

Experimental Extraction of Impact of Depletion Capacitance on Low Frequency Noise in Sub-Micron n MOSFETs With Reverse Body Bias. *Tanaka, C., +, TSM May 2020 146-149*

Two Transistors Voltage-Measurement-Based Test Structure for Fast MOSFET Device Mismatch Characterization. *Brito, J.P.M., +, TSM May 2020 166-173*

MRAM devices

Resistance Measurement Platform for Statistical Analysis of Emerging Memory Materials. *Maeda, T., +, TSM May 2020 232-239*

N**Nanocomposites**

Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. *Nien, Y., +, TSM May 2020 295-301*

Nanofabrication

Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. *Nien, Y., +, TSM May 2020 295-301*

Nanofibers

Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. *Nien, Y., +, TSM May 2020 295-301*

Nanolithography

Control of Thermo-Mechanical Wafer Deformations in EUV Lithography Using an Active Wafer Clamp. *van den Hurk, D., +, TSM Feb. 2020 96-102*

Understanding the Significance of Local Variability in Defect-Aware Process Windows. *Maslow, M.J., +, TSM Feb. 2020 42-52*

Neural networks

CNN-Based Layout Segment Classification for Analysis of Layout-Induced Failures. *Nagamura, Y., +, TSM Nov. 2020 597-605*

Deep Learning-Based Dynamic Scheduling for Semiconductor Manufacturing With High Uncertainty of Automated Material Handling System Capability. *Kim, H., +, TSM Feb. 2020 13-22*

Layout Pattern Synthesis for Lithography Optimizations. *Kareem, P., +, TSM May 2020 283-290*

Locally Adaptive Statistical Background Modeling With Deep Learning-Based False Positive Rejection for Defect Detection in Semiconductor Units. *Haddad, B.M., +, TSM Aug. 2020 357-372*

Nickel

Impact of Water Content in NMP on Ohmic Contacts in GaN HEMT Technologies. *Hugger, A., +, TSM Nov. 2020 552-556*

Noise measurement

Experimental Extraction of Impact of Depletion Capacitance on Low Frequency Noise in Sub-Micron n MOSFETs With Reverse Body Bias. *Tanaka, C., +, TSM May 2020 146-149*

Increasing the Utilization of Deep Neural Networks for SEM Measurements Through Multiple Task Formulation and Visualization. *Chaudhary, N., +, TSM Aug. 2020 322-330*

Noise reduction

Increasing the Utilization of Deep Neural Networks for SEM Measurements Through Multiple Task Formulation and Visualization. *Chaudhary, N., +, TSM Aug. 2020 322-330*

Normal distribution

Statistical Extraction of Normally and Lognormally Distributed Model Parameters for Power MOSFETs. *Tsukamoto, H., +, TSM May 2020 150-158*

O**Ohmic contacts**

Impact of Water Content in NMP on Ohmic Contacts in GaN HEMT Technologies. *Hugger, A., +, TSM Nov. 2020 552-556*

Optical device fabrication

Process Optimization and Microwave Model of GaAs Photodiodes for 50 Gb/s Optical Links. *Wu, D., +, TSM Nov. 2020 557-563*

Optical harmonic generation

An Investigation of Field-Effect Passivation Layer Characteristics Using Second Harmonic Generation Measurement. *Park, S., +, TSM Feb. 2020 109-115*

Optical interconnections

Process Optimization and Microwave Model of GaAs Photodiodes for 50 Gb/s Optical Links. *Wu, D., +, TSM Nov. 2020 557-563*

Optical materials

An Investigation of Field-Effect Passivation Layer Characteristics Using Second Harmonic Generation Measurement. *Park, S., +, TSM Feb. 2020 109-115*

Optical multilayers

An Investigation of Field-Effect Passivation Layer Characteristics Using Second Harmonic Generation Measurement. *Park, S., +, TSM Feb. 2020 109-115*

Optical scattering

Enhancement of Diffraction-Based Overlay Model for Overlay Target With Asymmetric Sidewall. *Su, C., +, TSM Aug. 2020 373-382*

Optimal scheduling

Noncyclic Scheduling of Multi-Cluster Tools With Residency Constraints Based on Pareto Optimization. *Yan, Y., +, TSM Aug. 2020 476-486*

Optimization

A Sequential Search Method of Dispatching Rules for Scheduling of LCD Manufacturing Systems. *Lee, J., +, TSM Nov. 2020 496-503*

Color Difference Detection of Polysilicon Wafers Using Optimized Support Vector Machine by Magnetic Bacteria Optimization Algorithm With Elitist Strategy. *Guo, B., +, TSM May 2020 267-282*

Surface Copper Voids in BEOL Copper Metal Layers. *Bhat, T.S., +, TSM Aug. 2020 433-435*

Which Spare Parts Service Measure to Choose for a Front-End Wafer Fab?. *Lamghari-Idrisi, D., +, TSM Nov. 2020 504-510*

Organic field effect transistors

Measurement and Modeling of Ambient-Air-Induced Degradation in Organic Thin-Film Transistor. *Shintani, M., +, TSM May 2020 216-223*

Oscillators

Extracting Voltage Dependence of BTI-induced Degradation Without Temporal Factors by Using BTI-Sensitive and BTI-Insensitive Ring Oscillators. *Kishida, R., +, TSM May 2020 174-179*

Measurement and Modeling of Ambient-Air-Induced Degradation in Organic Thin-Film Transistor. *Shintani, M., +, TSM May 2020 216-223*

Oxidation

Impact of Water Content in NMP on Ohmic Contacts in GaN HEMT Technologies. *Hugger, A., +, TSM Nov. 2020 552-556*

Oxygen

Optimization of Nafion Polymer Electrolyte Membrane Design and Microfabrication. *Marland, J.R.K., +, TSM May 2020 196-201*

P**P-n junctions**

Bipolar Transistor Test Structures for Extracting Minority Carrier Lifetime in IGBTs. *Takeuchi, K., +, TSM May 2020 159-165*

Parameter estimation

Measurement and Modeling of Ambient-Air-Induced Degradation in Organic Thin-Film Transistor. *Shintani, M., +, TSM May 2020 216-223*

Pareto optimization

Noncyclic Scheduling of Multi-Cluster Tools With Residency Constraints Based on Pareto Optimization. *Yan, Y., +, TSM Aug. 2020* 476-486

Passivation

An Investigation of Field-Effect Passivation Layer Characteristics Using Second Harmonic Generation Measurement. *Park, S., +, TSM Feb. 2020* 109-115

Pattern classification

A Semi-Supervised and Incremental Modeling Framework for Wafer Map Classification. *Kong, Y., +, TSM Feb. 2020* 62-71

Active Learning of Convolutional Neural Network for Cost-Effective Wafer Map Pattern Classification. *Shim, J., +, TSM May 2020* 258-266

Chamber-to-Chamber Discrepancy Detection in Semiconductor Manufacturing. *Chouichi, A., +, TSM Feb. 2020* 86-95

Layout Pattern Synthesis for Lithography Optimizations. *Kareem, P., +, TSM May 2020* 283-290

Memory-Augmented Convolutional Neural Networks With Triplet Loss for Imbalanced Wafer Defect Pattern Classification. *Hyun, Y., +, TSM Nov. 2020* 622-634

Semi-Supervised Multi-Label Learning for Classification of Wafer Bin Maps With Mixed-Type Defect Patterns. *Lee, H., +, TSM Nov. 2020* 653-662

Support Weighted Ensemble Model for Open Set Recognition of Wafer Map Defects. *Jang, J., +, TSM Nov. 2020* 635-643

Pattern clustering

Sensitivity Enhancement of SiO₂ Plasma Etching Endpoint Detection Using Modified Gaussian Mixture Model. *Lee, S., +, TSM May 2020* 252-257

Pattern formation

Inspection of Stochastic Defects With Broadband Plasma Optical Systems for Extreme Ultraviolet (EUV) Lithography. *Sah, K., +, TSM Feb. 2020* 23-31

Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. *Lin, T., +, TSM May 2020* 310-315

Pattern recognition

Deformable Convolutional Networks for Efficient Mixed-Type Wafer Defect Pattern Recognition. *Wang, J., +, TSM Nov. 2020* 587-596

Support Weighted Ensemble Model for Open Set Recognition of Wafer Map Defects. *Jang, J., +, TSM Nov. 2020* 635-643

TestDNA: Novel Wafer Defect Signature for Diagnosis and Pattern Recognition. *Li, K.S., +, TSM Aug. 2020* 383-390

Phase change memories

Resistance Measurement Platform for Statistical Analysis of Emerging Memory Materials. *Maeda, T., +, TSM May 2020* 232-239

Phosphorus

Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femtosecond Laser Annealing. *Zhan, X., +, TSM Feb. 2020* 116-120

Photodiodes

Process Optimization and Microwave Model of GaAs Photodiodes for 50 Gb/s Optical Links. *Wu, D., +, TSM Nov. 2020* 557-563

Photolithography

Hybrid Overlay Modeling for Field-by-Field Error Correction in the Photolithography Process. *Kim, S.J., +, TSM Feb. 2020* 53-61

Photoresists

Design Impacts of Back-End-of-Line Line Edge Roughness. *Chu, E., +, TSM Feb. 2020* 32-41

Optimization of Nafion Polymer Electrolyte Membrane Design and Microfabrication. *Marland, J.R.K., +, TSM May 2020* 196-201

Photovoltaic effects

Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. *Nien, Y., +, TSM May 2020* 295-301

Physical vapor deposition

Surface Copper Voids in BEOL Copper Metal Layers. *Bhat, T.S., +, TSM Aug. 2020* 433-435

Piezoelectric devices

Development of Diaphragm and Microtunnel Structures for MEMS Piezoelectric Sensors. *Kumar, A., +, TSM Nov. 2020* 606-613

Piezoelectric transducers

A Method to Determine the Electret Charge Potential of MEMS Vibrational Energy Harvester Using Pure-White Noise. *Mitsuya, H., +, TSM May 2020* 180-186

Planarization

A Novel Method to Quantify Conditioner-to-Conditioner Variation and Predict Conditioner Lifetime and Process Failure Mode in Chemical Mechanical Planarization (CMP) Environment. *Gowda, A., +, TSM Nov. 2020* 614-621

Electron Beam Inspection in Physical Mode: Overpolish Monitoring of RMG CMP. *Hafer, R.F., +, TSM Aug. 2020* 352-356

Run-to-Run Control of Chemical Mechanical Polishing Process Based on Deep Reinforcement Learning. *Yu, J., +, TSM Aug. 2020* 454-465

Plasma CVD

Resistance Measurement Platform for Statistical Analysis of Emerging Memory Materials. *Maeda, T., +, TSM May 2020* 232-239

Plasma materials processing

Plasma Induced Damage Reduction of Ultra Low-k Dielectric by Using Source Pulsed Plasma Etching for Next BEOL Interconnect Manufacturing. *Jang, J.K., +, TSM May 2020* 302-309

Sensitivity Enhancement of SiO₂ Plasma Etching Endpoint Detection Using Modified Gaussian Mixture Model. *Lee, S., +, TSM May 2020* 252-257

Plating

Surface Copper Voids in BEOL Copper Metal Layers. *Bhat, T.S., +, TSM Aug. 2020* 433-435

Platinum

Optimization of Nafion Polymer Electrolyte Membrane Design and Microfabrication. *Marland, J.R.K., +, TSM May 2020* 196-201

Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. *Chou, J., +, TSM Feb. 2020* 121-127

Polymer electrolytes

Optimization of Nafion Polymer Electrolyte Membrane Design and Microfabrication. *Marland, J.R.K., +, TSM May 2020* 196-201

Power conversion

Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. *Nien, Y., +, TSM May 2020* 295-301

Power demand

Advanced Low Pin Count Test Architecture for Efficient Multi-Site Testing. *Seo, S., +, TSM Aug. 2020* 391-403

Power MOSFET

Statistical Extraction of Normally and Lognormally Distributed Model Parameters for Power MOSFETs. *Tsukamoto, H., +, TSM May 2020* 150-158

Power supplies

Application of ANN for Fault Detection in Overhead Transport Systems for Semiconductor Fab. *Zhakov, A., +, TSM Aug. 2020* 337-345

Predictive models

Run-to-Run Control of Chemical Mechanical Polishing Process Based on Deep Reinforcement Learning. *Yu, J., +, TSM Aug. 2020* 454-465

Probability

Chamber-to-Chamber Discrepancy Detection in Semiconductor Manufacturing. *Chouichi, A., +, TSM Feb. 2020* 86-95

Probes

TestDNA: Novel Wafer Defect Signature for Diagnosis and Pattern Recognition. *Li, K.S., +, TSM Aug. 2020* 383-390

Process control

Critical Dimension Bimodality Both Within Wafer and Within Die. *Bhat, T.S., +, TSM Aug. 2020* 487-489

Electron Beam Inspection in Physical Mode: Overpolish Monitoring of RMG CMP. *Hafer, R.F., +, TSM Aug. 2020* 352-356

Run-to-Run Control of Chemical Mechanical Polishing Process Based on Deep Reinforcement Learning. *Yu, J., +, TSM Aug. 2020* 454-465

Product design

TFT-LCD Contrast Ratio Improvement by Using Design for Six Sigma Disciplines. *Su, F., +, TSM Feb. 2020* 128-139

Product development

A Simple Model of Capacity Contention During New Product Introductions. *Manda, A.B., +, TSM May 2020* 240-251

Production control

SMT2020—A Semiconductor Manufacturing Testbed. *Kopp, D., +, TSM Nov. 2020 522-531*

Production engineering computing

A Semi-Supervised and Incremental Modeling Framework for Wafer Map Classification. *Kong, Y., +, TSM Feb. 2020 62-71*

Production facilities

Deep Learning-Based Dynamic Scheduling for Semiconductor Manufacturing With High Uncertainty of Automated Material Handling System Capability. *Kim, H., +, TSM Feb. 2020 13-22*

Production management

Chamber-to-Chamber Discrepancy Detection in Semiconductor Manufacturing. *Chouichi, A., +, TSM Feb. 2020 86-95*

Production planning

A Simple Model of Capacity Contention During New Product Introductions. *Manda, A.B., +, TSM May 2020 240-251*

Simulation-Based Performance Assessment of Production Planning Models With Safety Stock and Forecast Evolution in Semiconductor Wafer Fabrication. *Ziarnetzky, T., +, TSM Feb. 2020 1-12*

SMT2020—A Semiconductor Manufacturing Testbed. *Kopp, D., +, TSM Nov. 2020 522-531*

Prognostics and health management

Data-Driven Framework for Tool Health Monitoring and Maintenance Strategy for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020 644-652*

Prosthetics

Test Structures for Developing Packaging for Implantable Sensors. *Blair, E.O., +, TSM May 2020 224-231*

Proton exchange membrane fuel cells

Optimization of Nafion Polymer Electrolyte Membrane Design and Micro-fabrication. *Marland, J.R.K., +, TSM May 2020 196-201*

Proximity effect (lithography)

Layout Pattern Synthesis for Lithography Optimizations. *Kareem, P., +, TSM May 2020 283-290*

Understanding the Significance of Local Variability in Defect-Aware Process Windows. *Maslow, M.J., +, TSM Feb. 2020 42-52*

Q**Qualifications**

Matheuristics for Qualification Management Decisions in Wafer fabs. *Kopp, D., +, TSM Nov. 2020 511-521*

Quality control

A Semi-Supervised and Incremental Modeling Framework for Wafer Map Classification. *Kong, Y., +, TSM Feb. 2020 62-71*

Advanced Quality Control (AQC) of Silicon Wafer Specifications for Yield Enhancement for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020 569-577*

Chamber-to-Chamber Discrepancy Detection in Semiconductor Manufacturing. *Chouichi, A., +, TSM Feb. 2020 86-95*

Quality function deployment

TFT-LCD Contrast Ratio Improvement by Using Design for Six Sigma Disciplines. *Su, F., +, TSM Feb. 2020 128-139*

Queueing theory

A Simple Model of Capacity Contention During New Product Introductions. *Manda, A.B., +, TSM May 2020 240-251*

R**Rails**

Application of ANN for Fault Detection in Overhead Transport Systems for Semiconductor Fab. *Zhakov, A., +, TSM Aug. 2020 337-345*

Raman spectra

Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femtosecond Laser Annealing. *Zhan, X., +, TSM Feb. 2020 116-120*

Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. *Chou, J., +, TSM Feb. 2020 121-127*

+ Check author entry for coauthors

Random access memory

Applying Taguchi's Method, Artificial Neural Network and Genetic Algorithm to Reduce the CoSi₂ Resistance Deviation of DRAM Products. *Lin, C., +, TSM Aug. 2020 404-412*

Random noise

Resistance Measurement Platform for Statistical Analysis of Emerging Memory Materials. *Maeda, T., +, TSM May 2020 232-239*

Regression analysis

Hybrid Overlay Modeling for Field-by-Field Error Correction in the Photolithography Process. *Kim, S.J., +, TSM Feb. 2020 53-61*

Two Transistors Voltage-Measurement-Based Test Structure for Fast MOS-FET Device Mismatch Characterization. *Brito, J.P.M., +, TSM May 2020 166-173*

Reinforcement learning

Run-to-Run Control of Chemical Mechanical Polishing Process Based on Deep Reinforcement Learning. *Yu, J., +, TSM Aug. 2020 454-465*

Reliability

Guest Editorial Special Section on the International Conference on Micro-electronic Test Structures (ICMTS). *Sekitani, T., TSM May 2020 144-145*
TFT-LCD Contrast Ratio Improvement by Using Design for Six Sigma Disciplines. *Su, F., +, TSM Feb. 2020 128-139*

Resins

Test Structures for Developing Packaging for Implantable Sensors. *Blair, E.O., +, TSM May 2020 224-231*

Resistance

Applying Taguchi's Method, Artificial Neural Network and Genetic Algorithm to Reduce the CoSi₂ Resistance Deviation of DRAM Products. *Lin, C., +, TSM Aug. 2020 404-412*

Characterization of eFuse Programming for Varying RF BiCMOS Technology Silicides. *Gebreselasie, E., +, TSM Aug. 2020 331-336*

Resistive RAM

Resistance Measurement Platform for Statistical Analysis of Emerging Memory Materials. *Maeda, T., +, TSM May 2020 232-239*

Resists

Critical Dimension Bimodality Both Within Wafer and Within Die. *Bhat, T.S., +, TSM Aug. 2020 487-489*

Elimination of Metal Fencing by Optimizing Evaporator Dome Alignment. *Cheng, K., TSM Nov. 2020 564-568*

Layout Pattern Synthesis for Lithography Optimizations. *Kareem, P., +, TSM May 2020 283-290*

Robot kinematics

Noncyclic Scheduling of Multi-Cluster Tools With Residency Constraints Based on Pareto Optimization. *Yan, Y., +, TSM Aug. 2020 476-486*

Rutherford backscattering

An Investigation of Field-Effect Passivation Layer Characteristics Using Second Harmonic Generation Measurement. *Park, S., +, TSM Feb. 2020 109-115*

S**S-parameters**

Crack-Free Fabrication and Electrical Characterization of Coaxial Ultra-Low-Resistivity-Silicon Through-Silicon-Vias. *Luo, X., +, TSM Feb. 2020 103-108*

Scanning electron microscopy

Conduction and Electric Field Effect in Ultra-Thin Tungsten Films. *van der Zouw, K., +, TSM May 2020 202-209*

Deep Learning for Classification of the Chemical Composition of Particle Defects on Semiconductor Wafers. *O'Leary, J., +, TSM Feb. 2020 72-85*

Increasing the Utilization of Deep Neural Networks for SEM Measurements Through Multiple Task Formulation and Visualization. *Chaudhary, N., +, TSM Aug. 2020 322-330*

Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. *Chou, J., +, TSM Feb. 2020 121-127*

Scheduling

A Simple Model of Capacity Contention During New Product Introductions. *Manda, A.B., +, TSM May 2020 240-251*

Search methods

A Sequential Search Method of Dispatching Rules for Scheduling of LCD Manufacturing Systems. *Lee, J., +, TSM Nov. 2020* 496-503

Semiconductor device manufacture

A Semi-Supervised and Incremental Modeling Framework for Wafer Map Classification. *Kong, Y., +, TSM Feb. 2020* 62-71

Active Learning of Convolutional Neural Network for Cost-Effective Wafer Map Pattern Classification. *Shim, J., +, TSM May 2020* 258-266

Chamber-to-Chamber Discrepancy Detection in Semiconductor Manufacturing. *Chouichi, A., +, TSM Feb. 2020* 86-95

Deep Learning-Based Domain Adaptation Method for Fault Diagnosis in Semiconductor Manufacturing. *Azamfar, M., +, TSM Aug. 2020* 445-453

Deep Learning-Based Dynamic Scheduling for Semiconductor Manufacturing With High Uncertainty of Automated Material Handling System Capability. *Kim, H., +, TSM Feb. 2020* 13-22

Deformable Convolutional Networks for Efficient Mixed-Type Wafer Defect Pattern Recognition. *Wang, J., +, TSM Nov. 2020* 587-596

Enhancement of Diffraction-Based Overlay Model for Overlay Target With Asymmetric Sidewall. *Su, C., +, TSM Aug. 2020* 373-382

Guest Editorial Special Section on the 2019 SEMI Advanced Semiconductor Manufacturing Conference. *Bickford, J.P., +, TSM Aug. 2020* 319-321

Guest Editorial Special Section on the 2020 International Conference on Compound Semiconductor Manufacturing Technology (CS-MANTECH). *Fay, P., TSM Nov. 2020* 532-533

Guest Editorial Special Section—Papers From the 2019 MASM/WSC Conference. *Fowler, J.W., +, TSM Nov. 2020* 493-495

Hybrid Overlay Modeling for Field-by-Field Error Correction in the Photolithography Process. *Kim, S.J., +, TSM Feb. 2020* 53-61

Impact of Water Content in NMP on Ohmic Contacts in GaN HEMT Technologies. *Hugger, A., +, TSM Nov. 2020* 552-556

Memory-Augmented Convolutional Neural Networks With Triplet Loss for Imbalanced Wafer Defect Pattern Classification. *Hyun, Y., +, TSM Nov. 2020* 622-634

Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. *Lin, T., +, TSM May 2020* 310-315

Qualitative and Quantitative Analysis of Multi-Pattern Wafer Bin Maps. *Kong, Y., +, TSM Nov. 2020* 578-586

Run-to-Run Control of Chemical Mechanical Polishing Process Based on Deep Reinforcement Learning. *Yu, J., +, TSM Aug. 2020* 454-465

Semi-Supervised Multi-Label Learning for Classification of Wafer Bin Maps With Mixed-Type Defect Patterns. *Lee, H., +, TSM Nov. 2020* 653-662

SMT2020—A Semiconductor Manufacturing Testbed. *Kopp, D., +, TSM Nov. 2020* 522-531

Support Weighted Ensemble Model for Open Set Recognition of Wafer Map Defects. *Jang, J., +, TSM Nov. 2020* 635-643

Variational Deep Clustering of Wafer Map Patterns. *Hwang, J., +, TSM Aug. 2020* 466-475

Semiconductor device measurement

Application of ANN for Fault Detection in Overhead Transport Systems for Semiconductor Fab. *Zhakov, A., +, TSM Aug. 2020* 337-345

Critical Dimension Bimodality Both Within Wafer and Within Die. *Bhat, T.S., +, TSM Aug. 2020* 487-489

Experimental Extraction of Impact of Depletion Capacitance on Low Frequency Noise in Sub-Micron n MOSFETs With Reverse Body Bias. *Tanaka, C., +, TSM May 2020* 146-149

Two Transistors Voltage-Measurement-Based Test Structure for Fast MOS-FET Device Mismatch Characterization. *Brito, J.P.M., +, TSM May 2020* 166-173

Which Spare Parts Service Measure to Choose for a Front-End Wafer Fab?. *Lamghari-Idrissi, D., +, TSM Nov. 2020* 504-510

Semiconductor device modeling

A Deep Convolutional Neural Network for Wafer Defect Identification on an Imbalanced Dataset in Semiconductor Manufacturing Processes. *Saglaiin, M., +, TSM Aug. 2020* 436-444

A Light-Weight Neural Network for Wafer Map Classification Based on Data Augmentation. *Tsai, T., +, TSM Nov. 2020* 663-672

Critical Dimension Bimodality Both Within Wafer and Within Die. *Bhat, T.S., +, TSM Aug. 2020* 487-489

Guest Editorial Special Section on the International Conference on Micro-electronic Test Structures (ICMTS). *Sekitani, T., TSM May 2020* 144-145

Matheuristics for Qualification Management Decisions in Wafer Fabs. *Kopp, D., +, TSM Nov. 2020* 511-521

Process Optimization and Microwave Model of GaAs Photodiodes for 50 Gb/s Optical Links. *Wu, D., +, TSM Nov. 2020* 557-563

Which Spare Parts Service Measure to Choose for a Front-End Wafer Fab?. *Lamghari-Idrissi, D., +, TSM Nov. 2020* 504-510

Semiconductor device models

Bipolar Transistor Test Structures for Extracting Minority Carrier Lifetime in IGBTs. *Takeuchi, K., +, TSM May 2020* 159-165

Experimental Extraction of Impact of Depletion Capacitance on Low Frequency Noise in Sub-Micron n MOSFETs With Reverse Body Bias. *Tanaka, C., +, TSM May 2020* 146-149

Measurement and Modeling of Ambient-Air-Induced Degradation in Organic Thin-Film Transistor. *Shintani, M., +, TSM May 2020* 216-223

Statistical Extraction of Normally and Lognormally Distributed Model Parameters for Power MOSFETs. *Tsukamoto, H., +, TSM May 2020* 150-158

Semiconductor device noise

Experimental Extraction of Impact of Depletion Capacitance on Low Frequency Noise in Sub-Micron n MOSFETs With Reverse Body Bias. *Tanaka, C., +, TSM May 2020* 146-149

Semiconductor device reliability

Abnormal Silicon-Germanium (SiGe) Epitaxial Growth in FinFETs. *Bhat, T.S., +, TSM May 2020* 291-294

Measurement and Modeling of Ambient-Air-Induced Degradation in Organic Thin-Film Transistor. *Shintani, M., +, TSM May 2020* 216-223

Semiconductor device testing

Bipolar Transistor Test Structures for Extracting Minority Carrier Lifetime in IGBTs. *Takeuchi, K., +, TSM May 2020* 159-165

Two Transistors Voltage-Measurement-Based Test Structure for Fast MOS-FET Device Mismatch Characterization. *Brito, J.P.M., +, TSM May 2020* 166-173

Semiconductor devices

Dependability Assessment of Transfer Length Method to Extract the Metal–Graphene Contact Resistance. *Driussi, F., +, TSM May 2020* 210-215

Semiconductor diodes

A Study on the Impact of Mid-Gap Defects on Vertical GaN Diodes. *Ebrish, M.A., +, TSM Nov. 2020* 546-551

Semiconductor doping

Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femtosecond Laser Annealing. *Zhan, X., +, TSM Feb. 2020* 116-120

Semiconductor growth

Abnormal Silicon-Germanium (SiGe) Epitaxial Growth in FinFETs. *Bhat, T.S., +, TSM May 2020* 291-294

Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. *Nien, Y., +, TSM May 2020* 295-301

Semiconductor industry

Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. *Lin, T., +, TSM May 2020* 310-315

Simulation-Based Performance Assessment of Production Planning Models With Safety Stock and Forecast Evolution in Semiconductor Wafer Fabrication. *Ziarnetzky, T., +, TSM Feb. 2020* 1-12

Semiconductor process modeling

Abnormal Silicon-Germanium (SiGe) Epitaxial Growth in FinFETs. *Bhat, T.S., +, TSM May 2020* 291-294

Semiconductor technology

A Semi-Supervised and Incremental Modeling Framework for Wafer Map Classification. *Kong, Y., +, TSM Feb. 2020* 62-71

Color Difference Detection of Polysilicon Wafers Using Optimized Support Vector Machine by Magnetic Bacteria Optimization Algorithm With Elitist Strategy. *Guo, B., +, TSM May 2020* 267-282

Control of Thermo-Mechanical Wafer Deformations in EUV Lithography Using an Active Wafer Clamp. *van den Hurk, D., +, TSM Feb. 2020* 96-102

- Hybrid Overlay Modeling for Field-by-Field Error Correction in the Photolithography Process. *Kim, S.J., +, TSM Feb. 2020 53-61*
- Semiconductor thin films**
- Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femtosecond Laser Annealing. *Zhan, X., +, TSM Feb. 2020 116-120*
- Semisupervised learning**
- Semi-Supervised Multi-Label Learning for Classification of Wafer Bin Maps With Mixed-Type Defect Patterns. *Lee, H., +, TSM Nov. 2020 653-662*
- Shadow mapping**
- Extension of CD-TEM Towards 3D Elemental Mapping. *Baumann, F.H., +, TSM Aug. 2020 346-351*
- Silicides**
- Characterization of eFuse Programming for Varying RF BiCMOS Technology Silicides. *Gebreselasie, E., +, TSM Aug. 2020 331-336*
- Silicon**
- Advanced Quality Control (AQC) of Silicon Wafer Specifications for Yield Enhancement for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020 569-577*
- An On-Chip Micromachined Test Structure to Study the Tribological Behavior of Deep-RIE MEMS Sidewall Surfaces. *Reddy, R.R., +, TSM May 2020 187-195*
- Color Difference Detection of Polysilicon Wafers Using Optimized Support Vector Machine by Magnetic Bacteria Optimization Algorithm With Elitist Strategy. *Guo, B., +, TSM May 2020 267-282*
- Development of Diaphragm and Microtunnel Structures for MEMS Piezoelectric Sensors. *Kumar, A., +, TSM Nov. 2020 606-613*
- Measurement and Modeling of Ambient-Air-Induced Degradation in Organic Thin-Film Transistor. *Shintani, M., +, TSM May 2020 216-223*
- Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femtosecond Laser Annealing. *Zhan, X., +, TSM Feb. 2020 116-120*
- Resistance Measurement Platform for Statistical Analysis of Emerging Memory Materials. *Maeda, T., +, TSM May 2020 232-239*
- Silicon carbide**
- Development of a World Class Silicon Carbide Substrate Manufacturing Capability. *Blevins, J.D., TSM Nov. 2020 539-545*
- Silicon compounds**
- Optimization of Nafion Polymer Electrolyte Membrane Design and Microfabrication. *Marland, J.R.K., +, TSM May 2020 196-201*
- Statistical Extraction of Normally and Lognormally Distributed Model Parameters for Power MOSFETs. *Tsukamoto, H., +, TSM May 2020 150-158*
- Silicon-on-insulator**
- An On-Chip Micromachined Test Structure to Study the Tribological Behavior of Deep-RIE MEMS Sidewall Surfaces. *Reddy, R.R., +, TSM May 2020 187-195*
- Simulation**
- A Sequential Search Method of Dispatching Rules for Scheduling of LCD Manufacturing Systems. *Lee, J., +, TSM Nov. 2020 496-503*
- Guest Editorial Special Section—Papers From the 2019 MASM/WSC Conference. *Fowler, J.W., +, TSM Nov. 2020 493-495*
- SMT2020—A Semiconductor Manufacturing Testbed. *Kopp, D., +, TSM Nov. 2020 522-531*
- Six sigma (quality)**
- TFT-LCD Contrast Ratio Improvement by Using Design for Six Sigma Disciplines. *Su, F., +, TSM Feb. 2020 128-139*
- Slurries**
- A Novel Method to Quantify Conditioner-to-Conditioner Variation and Predict Conditioner Lifetime and Process Failure Mode in Chemical Mechanical Planarization (CMP) Environment. *Gowda, A., +, TSM Nov. 2020 614-621*
- Smart manufacturing**
- Advanced Quality Control (AQC) of Silicon Wafer Specifications for Yield Enhancement for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020 569-577*
- Data-Driven Framework for Tool Health Monitoring and Maintenance Strategy for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020 644-652*

Smoke

Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. *Lin, T., +, TSM May 2020 310-315*

Solid electrolytes

Optimization of Nafion Polymer Electrolyte Membrane Design and Microfabrication. *Marland, J.R.K., +, TSM May 2020 196-201*

Special issues and sections

Guest Editorial Special Section on the 2019 SEMI Advanced Semiconductor Manufacturing Conference. *Bickford, J.P., +, TSM Aug. 2020 319-321*

Guest Editorial Special Section on the 2020 International Conference on Compound Semiconductor Manufacturing Technology (CS-MANTECH). *Fay, P., TSM Nov. 2020 532-533*

Guest Editorial Special Section on the International Conference on Microelectronic Test Structures (ICMTS). *Sekitani, T., TSM May 2020 144-145*

Guest Editorial Special Section—Papers From the 2019 MASM/WSC Conference. *Fowler, J.W., +, TSM Nov. 2020 493-495*

Spectrochemical analysis

SENSE Enhancement of SiO₂ Plasma Etching Endpoint Detection Using Modified Gaussian Mixture Model. *Lee, S., +, TSM May 2020 252-257*

Sputter etching

An On-Chip Micromachined Test Structure to Study the Tribological Behavior of Deep-RIE MEMS Sidewall Surfaces. *Reddy, R.R., +, TSM May 2020 187-195*

Plasma Induced Damage Reduction of Ultra Low-k Dielectric by Using Source Pulsed Plasma Etching for Next BEOL Interconnect Manufacturing. *Jang, J.K., +, TSM May 2020 302-309*

Sensitivity Enhancement of SiO₂ Plasma Etching Endpoint Detection Using Modified Gaussian Mixture Model. *Lee, S., +, TSM May 2020 252-257*

Sputtering

Surface Copper Voids in BEOL Copper Metal Layers. *Bhat, T.S., +, TSM Aug. 2020 433-435*

SRAM chips

Design Impacts of Back-End-of-Line Line Edge Roughness. *Chu, E., +, TSM Feb. 2020 32-41*

Standards

Critical Dimension Bimodality Both Within Wafer and Within Die. *Bhat, T.S., +, TSM Aug. 2020 487-489*

Statistical analysis

Chamber-to-Chamber Discrepancy Detection in Semiconductor Manufacturing. *Chouichi, A., +, TSM Feb. 2020 86-95*

Dependability Assessment of Transfer Length Method to Extract the Metal–Graphene Contact Resistance. *Driussi, F., +, TSM May 2020 210-215*

Resistance Measurement Platform for Statistical Analysis of Emerging Memory Materials. *Maeda, T., +, TSM May 2020 232-239*

Understanding the Significance of Local Variability in Defect-Aware Process Windows. *Maslow, M.J., +, TSM Feb. 2020 42-52*

Stochastic processes

Inspection of Stochastic Defects With Broadband Plasma Optical Systems for Extreme Ultraviolet (EUV) Lithography. *Sah, K., +, TSM Feb. 2020 23-31*

Simulation-Based Performance Assessment of Production Planning Models With Safety Stock and Forecast Evolution in Semiconductor Wafer Fabrication. *Ziarnetzky, T., +, TSM Feb. 2020 1-12*

Substrates

A Study on the Impact of Mid-Gap Defects on Vertical GaN Diodes. *Ebrish, M.A., +, TSM Nov. 2020 546-551*

Development of a World Class Silicon Carbide Substrate Manufacturing Capability. *Blevins, J.D., TSM Nov. 2020 539-545*

Elimination of Metal Fencing by Optimizing Evaporator Dome Alignment. *Cheng, K., TSM Nov. 2020 564-568*

Integration of 650 V GaN Power ICs on 200 mm Engineered Substrates. *Li, X., +, TSM Nov. 2020 534-538*

Supervised learning

A Semi-Supervised and Incremental Modeling Framework for Wafer Map Classification. *Kong, Y., +, TSM Feb. 2020 62-71*

Enhancement of Diffraction-Based Overlay Model for Overlay Target With Asymmetric Sidewall. *Su, C., +, TSM Aug. 2020 373-382*

- Guest Editorial Special Section on the 2019 SEMI Advanced Semiconductor Manufacturing Conference.** *Bickford, J.P., +, TSM Aug. 2020* 319-321
- Supply chain management**
- Simulation-Based Performance Assessment of Production Planning Models With Safety Stock and Forecast Evolution in Semiconductor Wafer Fabrication. *Ziarnetzky, T., +, TSM Feb. 2020* 1-12
- Support vector machines**
- Color Difference Detection of Polysilicon Wafers Using Optimized Support Vector Machine by Magnetic Bacteria Optimization Algorithm With Elitist Strategy. *Guo, B., +, TSM May 2020* 267-282
- Surface morphology**
- Phosphorous-Doped α -Si Film Crystallization Using Heat-Assisted Femtosecond Laser Annealing. *Zhan, X., +, TSM Feb. 2020* 116-120
- Surface treatment**
- A Novel Method to Quantify Conditioner-to-Conditioner Variation and Predict Conditioner Lifetime and Process Failure Mode in Chemical Mechanical Planarization (CMP) Environment. *Gowda, A., +, TSM Nov. 2020* 614-621
- System-on-chip**
- Advanced Low Pin Count Test Architecture for Efficient Multi-Site Testing. *Seo, S., +, TSM Aug. 2020* 391-403
- T**
- Taguchi methods**
- TFT-LCD Contrast Ratio Improvement by Using Design for Six Sigma Disciplines. *Su, F., +, TSM Feb. 2020* 128-139
- Thermomechanical treatment**
- Control of Thermo-Mechanical Wafer Deformations in EUV Lithography Using an Active Wafer Clamp. *van den Hurk, D., +, TSM Feb. 2020* 96-102
- Thin film transistors**
- Combination of Convolutional and Generative Adversarial Networks for Defect Image Demoiréing of Thin-Film Transistor Liquid-Crystal Display Image. *Lu, H., +, TSM Aug. 2020* 413-423
 - Data-Driven Framework for Tool Health Monitoring and Maintenance Strategy for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020* 644-652
 - Measurement and Modeling of Ambient-Air-Induced Degradation in Organic Thin-Film Transistor. *Shintani, M., +, TSM May 2020* 216-223
 - TFT-LCD Contrast Ratio Improvement by Using Design for Six Sigma Disciplines. *Su, F., +, TSM Feb. 2020* 128-139
- Thin films**
- Optimization of Nafion Polymer Electrolyte Membrane Design and Micro-fabrication. *Marland, J.R.K., +, TSM May 2020* 196-201
- Three-dimensional displays**
- Extension of CD-TEM Towards 3D Elemental Mapping. *Baumann, F.H., +, TSM Aug. 2020* 346-351
- Three-dimensional integrated circuits**
- Crack-Free Fabrication and Electrical Characterization of Coaxial Ultra-Low-Resistivity-Silicon Through-Silicon-Vias. *Luo, X., +, TSM Feb. 2020* 103-108
- Titanium compounds**
- Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO_2 -ZnO Nanofibers. *Nien, Y., +, TSM May 2020* 295-301
 - Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. *Chou, J., +, TSM Feb. 2020* 121-127
 - Plasma Induced Damage Reduction of Ultra Low-k Dielectric by Using Source Pulsed Plasma Etching for Next BEOL Interconnect Manufacturing. *Jang, J.K., +, TSM May 2020* 302-309
- Tomography**
- Extension of CD-TEM Towards 3D Elemental Mapping. *Baumann, F.H., +, TSM Aug. 2020* 346-351
- Tools**
- Data-Driven Framework for Tool Health Monitoring and Maintenance Strategy for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020* 644-652
 - Noncyclic Scheduling of Multi-Cluster Tools With Residency Constraints Based on Pareto Optimization. *Yan, Y., +, TSM Aug. 2020* 476-486
- Training**
- A Deep Convolutional Neural Network for Wafer Defect Identification on an Imbalanced Dataset in Semiconductor Manufacturing Processes. *Saglai, M., +, TSM Aug. 2020* 436-444
- Training data**
- Support Weighted Ensemble Model for Open Set Recognition of Wafer Map Defects. *Jang, J., +, TSM Nov. 2020* 635-643
- Transmission electron microscopy**
- Extension of CD-TEM Towards 3D Elemental Mapping. *Baumann, F.H., +, TSM Aug. 2020* 346-351
- Transportation**
- Deep Learning-Based Dynamic Scheduling for Semiconductor Manufacturing With High Uncertainty of Automated Material Handling System Capability. *Kim, H., +, TSM Feb. 2020* 13-22
- Tungsten**
- Conduction and Electric Field Effect in Ultra-Thin Tungsten Films. *van der Zouw, K., +, TSM May 2020* 202-209
 - Electron Beam Inspection in Physical Mode: Overpolish Monitoring of RMG CMP. *Hafer, R.F., +, TSM Aug. 2020* 352-356
- U**
- Ultraviolet lithography**
- Control of Thermo-Mechanical Wafer Deformations in EUV Lithography Using an Active Wafer Clamp. *van den Hurk, D., +, TSM Feb. 2020* 96-102
 - Design Impacts of Back-End-of-Line Line Edge Roughness. *Chu, E., +, TSM Feb. 2020* 32-41
 - Inspection of Stochastic Defects With Broadband Plasma Optical Systems for Extreme Ultraviolet (EUV) Lithography. *Sah, K., +, TSM Feb. 2020* 23-31
 - Understanding the Significance of Local Variability in Defect-Aware Process Windows. *Maslow, M.J., +, TSM Feb. 2020* 42-52
- Ultraviolet spectroscopy**
- Sensitivity Enhancement of SiO_2 Plasma Etching Endpoint Detection Using Modified Gaussian Mixture Model. *Lee, S., +, TSM May 2020* 252-257
- V**
- Ventilation**
- Performance of Different Front-Opening Unified Pod (FOUP) Moisture Removal Techniques With Local Exhaust Ventilation System. *Lin, T., +, TSM May 2020* 310-315
- Vertical cavity surface emitting lasers**
- Process Optimization and Microwave Model of GaAs Photodiodes for 50 Gb/s Optical Links. *Wu, D., +, TSM Nov. 2020* 557-563
- Very large scale integration**
- TestDNA: Novel Wafer Defect Signature for Diagnosis and Pattern Recognition. *Li, K.S., +, TSM Aug. 2020* 383-390
- Vibrations**
- A Method to Determine the Electret Charge Potential of MEMS Vibrational Energy Harvester Using Pure-White Noise. *Mitsuya, H., +, TSM May 2020* 180-186
- Visualization**
- Increasing the Utilization of Deep Neural Networks for SEM Measurements Through Multiple Task Formulation and Visualization. *Chaudhary, N., +, TSM Aug. 2020* 322-330
- Voltage measurement**
- Two Transistors Voltage-Measurement-Based Test Structure for Fast MOS-FET Device Mismatch Characterization. *Brito, J.P.M., +, TSM May 2020* 166-173
- W**
- White noise**
- A Method to Determine the Electret Charge Potential of MEMS Vibrational Energy Harvester Using Pure-White Noise. *Mitsuya, H., +, TSM May 2020* 180-186

Wide band gap semiconductors

Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. *Nien, Y., +, TSM May 2020 295-301*

Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. *Chou, J., +, TSM Feb. 2020 121-127*

Statistical Extraction of Normally and Lognormally Distributed Model Parameters for Power MOSFETs. *Tsukamoto, H., +, TSM May 2020 150-158*

X**X-ray chemical analysis**

Deep Learning for Classification of the Chemical Composition of Particle Defects on Semiconductor Wafers. *O'Leary, J., +, TSM Feb. 2020 72-85*

X-ray photoelectron spectra

An Investigation of Field-Effect Passivation Layer Characteristics Using Second Harmonic Generation Measurement. *Park, S., +, TSM Feb. 2020 109-115*

X-ray spectroscopy

Deep Learning for Classification of the Chemical Composition of Particle Defects on Semiconductor Wafers. *O'Leary, J., +, TSM Feb. 2020 72-85*

Y**Yield estimation**

Advanced Quality Control (AQC) of Silicon Wafer Specifications for Yield Enhancement for Smart Manufacturing. *Chien, C., +, TSM Nov. 2020 569-577*

Z**Zinc compounds**

Investigation of Dye-Sensitized Solar Cell With Photoanode Modified by TiO₂-ZnO Nanofibers. *Nien, Y., +, TSM May 2020 295-301*

Photovoltaic Properties of an rGO/Pt Counter Electrode With AZO Photoanode for Dye-Sensitized Solar Cells Under Low Light Intensity. *Chou, J., +, TSM Feb. 2020 121-127*