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page, and an abbreviated version on subsequent pages. Numbers in the index correspond to the
last two digits of the six-digit CID number.
Contents

Part One

 xv Conference Committee
 xix The Diana Nyyssonen Memorial Award for Best Paper

SESSION 1  KEYNOTE SESSION

8324 02  Can we get 3D-CD metrology right? (Keynote Paper) [8324-01]
A. E. Vladár, P. Cizmar, J. S. Villarrubia, M. T. Postek, NIST (United States)

8324 03  Inspection and metrology for through-silicon vias and 3D integration (Keynote Paper)
          [8324-02]
A. C. Rudack, SEMATECH (United States)

SESSION 2  LITHOGRAPHY METROLOGY AND INSPECTION

8324 04  Hybrid metrology solution for 1X-node technology [8324-03]
A. Vaid, A. Elia, M. Kelling, J. Allgair, GLOBALFOUNDRIES (United States); C. Hartig,
P. Ebersbach, GLOBALFOUNDRIES (Germany); E. McLellan, M. Sendelbach, N. Saleh,
N. Rana, IBM Corp. (United States); H. Kawada, T. Ikeno, T. Kawasaki, Hitachi
High-Technologies Corp. (Japan); C. Bozdog, H. Kim, Nova Measuring Instruments, Inc.
(United States); E. Arnon, R. Koret, I. Turovets, Nova Measuring Instruments, Ltd. (Israel)

8324 05  Dose-focus monitor technique using CD-SEM and application to local variation analysis
          [8324-04]
S. Hotta, Hitachi America, Ltd. (United States); T. Brunner, S. Halle, IBM Corp. (United States);
K. Hitomi, Hitachi America, Ltd. (United States); T. Kato, Hitachi High-Technologies Corp.
(Japan); A. Yamaguchi, Hitachi, Ltd. (Japan)

8324 06  Potential new CD metrology metric combined with data fusion for future node production
          [8324-05]
J. Foucher, J. Hazart, N. Griesbach Schuch Figueiro, CEA-LETI (France)

8324 07  A comparison of alignment and overlay performance with varying hardmask materials
          [8324-06]
S. Yun, S. M. Ha, Y. M. Nam, C.-H. Kim, S.-W. Nam, Samsung Electronics Co., Ltd. (Korea,
Republic of)

8324 08  High-order wafer alignment in manufacturing [8324-07]
M. Pike, N. Felix, V. Menon, C. Ausschnitt, T. Wiltshire, IBM Corp. (United States); S. Meyers,
GLOBALFOUNDRIES Inc. (United States); W. Kim, B. Minghetti, ASML US, Inc. (United States)
SESSION 3  OVERLAY TOPICS IN ADVANCED OPTICAL MICROLITHOGRAPHY: JOINT SESSION WITH CONFERENCE 8326

8324 09  Overlay accuracy with respect to device scaling  [8324-08]
   P. Leray, D. Laidler, S. Cheng, IMEC (Belgium)

8324 0A  New analytical algorithm for overlay accuracy  [8324-09]
   B.-H. Ham, S. Yun, M.-C. Kwak, S. M. Ha, C.-H. Kim, S.-W. Nam, Samsung Electronics Co., Ltd. (Korea, Republic of)

SESSION 4  INSPECTION

8324 0B  ArFi lithography optimization for thin OMOG reticle with fast aerial imaging  [8324-11]
   Y. Cohen, Applied Materials (Israel); J. Finders, ASML (Netherlands); S. Mangan, L. England, Applied Materials (Israel); O. Mouraille, M. Janssen, ASML (Netherlands); J. Miyazaki, ASML (Japan); B. Connolly, Toppan (Germany); Y. Kojima, M. Higuchi, Toppan (Japan)

8324 0C  Transistor architecture impact on wafer inspection  [8324-12]
   T. F. Crimmins, Intel Corp. (United States)

8324 0D  Ultrahigh 22-nm resolution EUV coherent diffraction imaging using a tabletop 13-nm high harmonic source  [8324-13]
   M. D. Seaberg, D. E. Adams, B. Zhang, D. F. Gardner, M. M. Murnane, H. C. Kapteyn, Univ. of Colorado at Boulder (United States)

8324 0E  Patterned defect and CD metrology by TSOM beyond the 22-nm node  [8324-14]
   A. Arceo, B. Bunday, V. Vartanian, SEMATECH (United States); R. Attota, NIST (United States)

8324 0F  Scatterfield microscopy of 22-nm node patterned defects using visible and DUV light  [8324-15]
   B. M. Barnes, Y.-J. Sohn, F. Goasmhat, H. Zhou, R. M. Silver, NIST (United States); A. Arceo, SEMATECH Advanced Metrology Division (United States)

8324 0G  Multiple column high-throughput e-beam inspection (EBI)  [8324-122]
   D. K. Lam, Multibeam Corp. (United States); K. M. Monahan, Quantflow Strategies (United States); E. D. Liu, C. Tran, T. Prescop, Multibeam Corp. (United States)

SESSION 5  LER/LWR

8324 0H  Roughness metrology of gate all around silicon nanowire devices (Invited Paper)  [8324-16]
   S. Levi, I. Schwarzband, R. Kris, O. Adan, Applied Materials (United States); G. M. Cohen, S. Bangsaruntip, L. Gignac, IBM Corp. (United States)

8324 0I  High-throughput and non-destructive sidewall roughness measurement using 3-dimensional atomic force microscopy  [8324-113]
   Y. Hua, C. Buenvialaje-Coggins, Park Systems Inc. (United States); Y. Lee, S. Park, Park Systems Corp. (Korea, Republic of)
Sensitivity analysis of line-edge roughness measured by means of scatterometry: a simulation-based investigation [8324-18]
B. Bilski, K. Frenner, W. Osten, Institut für Technische Optik (Germany)

Noise effects on contact-edge roughness and CD uniformity measurement [8324-19]
V. Constantoudis, National Ctr. for Scientific Research Demokritos (Greece); V. K. Murugesan Kuppuswamy, National Ctr. for Scientific Research Demokritos (Greece) and National Technical Univ. of Athens (Greece); E. Gogolides, National Ctr. for Scientific Research Demokritos (Greece)

Investigation of the performance of state-of-the-art defect inspection tools within EUV lithography [8324-20]
D. Van den Heuvel, R. Jonckheere, B. Baudemprez, S. Cheng, IMEC (Belgium); G. Marcuccilli, A. Cross, G. Inderhees, P. Parisi, KLA-Tencor (United States)

Scatterometry metrology challenges of EUV [8324-21]
P. Dasari, J. Li, J. Hu, Z. Liu, Nanometrics Inc. (United States); O. Kritsun, C. Volkman, GLOBALFOUNDRIES Inc. (United States)

Phase sensitive parametric optical metrology: exploring the limits of three-dimensional optical metrology [8324-22]
R. M. Silver, J. Qin, B. M. Barnes, H. Zhou, R. Dixon, F. Goasmat, NIST (United States)

Investigation of E-beam patterned nanostructures using Mueller Matrix based Scatterometry [8324-23]
G. R. Muthinti, SUNY/Albany (United States); B. Peterson, Nanometrics Inc. (United States); A. C. Diebold, SUNY/Albany (United States)

Accurate optical CD profiler based on specialized finite element method [8324-24]
J. Carrero, G. Perçin, Luminescent Technologies, Inc. (United States)

Coherent Fourier scatterometry: tool for improved sensitivity in semiconductor metrology [8324-25]
N. Kumar, O. El Gawhary, S. Roy, V. G. Kutchoukov, S. F. Pereira, Technische Univ. Delft (Netherlands); W. Coene, ASML Netherlands B.V. (Netherlands); H. P. Urbach, Technische Univ. Delft (Netherlands)

High-speed, full 3D feature metrology for litho monitoring, matching, and model calibration with scatterometry [8324-119]
H. Cramer, ASML Netherlands B.V. (Netherlands); A. Chen, ASML Taiwan Ltd. (Taiwan); F. Li, ASML Netherlands B.V. (Netherlands); P. Leray, A.-L. Charley, L. van Look, J. Bekaert, S. Cheng, IMEC (Belgium)
SESSION 8  METROLOGY AND INSPECTION FOR ALTERNATIVE LITHOGRAPHIC TECHNOLOGIES: JOINT SESSION WITH CONFERENCE 8323

8324 0T  Challenges of SEM metrology at sub-10nm linewidth [8324-27]
S. Babin, S. Borisov, C. Peroz, P. Yushmanov, aBeam Technologies, Inc. (United States)

SESSION 9  SCANNING PROBE METROLOGY

8324 0U  Contour metrology using critical dimension atomic force microscopy (Invited Paper) [8324-28]
N. G. Orji, R. G. Dixson, A. E. Vladár, B. Ming, M. T. Postek, NIST (United States)

8324 0V  On CD-AFM bias related to probe bending [8324-29]
V. A. Ukrain'tsev, NIST (United States) and Univ. of Maryland (United States) and Nanometrology International, Inc. (United States); N. G. Orji, T. V. Vorburger, R. G. Dixson, J. Fu, R. M. Silver, NIST (United States)

SESSION 10  ACCURACY AND STANDARDS

8324 0X  Sub-nanometer calibration of line width measurement and line edge detection by using STEM and sectional SEM [8324-31]
K. Takamasu, H. Okitou, S. Takahashi, The Univ. of Tokyo (Japan); M. Konno, O. Inoue, H. Kawada, Hitachi High-Technologies Corp. (Japan)

8324 0Y  Profile variation impact on FIB cross-section metrology [8324-32]
A. Cordes, B. Bunday, SEMATECH (United States); J. Nadeau, FEI Co. (United States)

8324 0Z  Automated S/TEM metrology on advanced semiconductor gate structures [8324-33]
M. Strauss, J. Arjavac, D. N. Horspool, K. Nakahara, FEI Co. (United States); C. Deeb, Intel Corp. (United States); C. Hobbs, SEMATECH (United States)

8324 10  Compensation of CD-SEM image-distortion detected by View-Shift Method [8324-34]
O. Inoue, T. Kawasaki, H. Kawada, Hitachi High-Technologies Corp. (Japan)

SESSION 11  METROLOGY AND INSPECTION FOR TSV AND 3D INTEGRATION

8324 11  In-line metrology of 3D interconnect processes (Invited Paper) [8324-35]
Y. S. Ku, Industrial Technology Research Institute (Taiwan) and National Tsing Hua Univ. (Taiwan); D. M. Shyu, P. Y. Chang, Industrial Technology Research Institute (Taiwan); W. T. Hsu, National Tsing Hua Univ. (Taiwan)

8324 12  Measuring thermally induced void growth in conformally filled through-silicon vias (TSVs) by laboratory x-ray microscopy [8324-36]
L. W. Kong, SUNY/Albany (United States), SEMATECH (United States), and GLOBALFOUNDRIES (United States); J. R. Lloyd, M. Liehr, SUNY/Albany (United States); A. C. Rudack, S. Arkalgud, SEMATECH (United States); A. C. Diebold, SUNY/Albany (United States)
SESSION 12 OVERLAY

8324 13 Through-silicon via plating void metrology using focused ion beam milling [8324-37]
A. C. Rudack, SEMATECH (United States); J. Nadeau, R. Routh, R. J. Young, FEI Co. (United States)

8324 14 Measurement of through silicon via etch profile by dark-field optical microscope [8324-38]
D.-M. Shyu, Y.-S. Ku, Industrial Technology Research Institute (Taiwan)

8324 15 Wafer level warpage characterization of 3D interconnect processing wafers [8324-39]
P.-Y. Chang, Y.-S. Ku, Industrial Technology Research Institute (Taiwan)

SESSION 13 SEM

8324 1D Scanning-electron-microscope image processing for accurate analysis of line-edge and line-width roughness [8324-47]
A. Hiraiwa, Waseda Univ. (Japan); A. Nishida, Renesas Electronics Corp. (Japan)

8324 1E Static and dynamic photoresist shrinkage effects in EUV photoresists [8324-48]
B. Bunday, C. Montgomery, SEMATECH (United States); W. Montgomery, SUNY/Albany (United States); A. Cordes, SEMATECH (United States)
**SESSION 14 LITHOGRAPHY PROCESS CONTROL**

**8324 1F** SEM metrology on bit patterned media nanoimprint template: issues and improvements [8324-49]
J. J. Hwu, Seagate Technology LLC (United States); S. Babin, P. Yushmanov, aBeam Technologies, Inc. (United States)

**8324 1G** Methodology for establishing CD-SEM robust metrology algorithm for development cycles applications [8324-50]
K. Hitomi, Hitachi America, Ltd. (United States); E. Lavigne, IBM Systems and Technology Group (United States); S. Hotta, Hitachi America, Ltd. (United States); Y. Momonoi, Hitachi, Ltd. (Japan); M. Colburn, IBM Research Div. (United States); A. Yamaguchi, Hitachi, Ltd. (Japan); K. Sasada, T. Maeda, Hitachi High-Technologies Corp. (Japan)

**8324 1H** Data feed-forward for improved optical CD and film metrology [8324-51]
L. Mihardja, M. Di, Q. Zhao, Z. Tan, J. C. Robinson, H. Chouaib, KLA-Tencor Corp. (United States)

**8324 1I** Faster diffraction-based overlay measurements with smaller targets using 3D gratings [8324-52]
J. Li, Nanometrics Inc. (United States); O. Kritsun, GLOBALFOUNDRIES Inc. (United States); Y. Liu, P. Dasari, Nanometrics Inc. (United States); C. Volkman, GLOBALFOUNDRIES Inc. (United States); J. Hu, Nanometrics Inc. (United States)

**8324 1J** Novel prediction methodology for etched hole patterning failure [8324-53]
S. Miyoshi, H. Abe, K. Takahata, T. Ojima, M. Kajiwara, S. Mimotogi, K. Hashimoto, Toshiba Corp. (Japan)

**8324 1K** Optimization of blended virtual and actual metrology schemes [8324-100]
J. Y. C. Baek, C. J. Spanos, Univ. of California, Berkeley (United States)

**8324 1L** Lithography process control using in-line metrology [8324-103]
N. Spaziani, LTM, CNRS (France) and STMicroelectronics (France); R.-L. Inglebert, LTM, CNRS (France); J. Massin, STMicroelectronics (France)

**Part Two**

**SESSION 15 NOVEL TECHNOLOGIES AND LATE BREAKING NEWS**

**8324 1M** Bridging CD metrology gaps of advanced patterning with assistance of nanomolding (Invited Paper) [8324-55]
N. Rana, D. Goldfarb, IBM Corp. (United States)

**8324 1N** Scanning electron microscopy imaging of ultra-high aspect ratio hole features [8324-56]
A. J. Cepler, SEMATECH (United States) and SUNY/Albany (United States); B. Bunday, SEMATECH (United States); B. L. Thiel, SEMATECH (United States) and SUNY/Albany (United States); J. S. Villarrubia, NIST (United States)
<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>8324 P</td>
<td>Characterization of ultrathin films by laser-induced sub-picosecond photoacoustics with coherent extreme ultraviolet detection [8324-58]</td>
<td>Q. Li, K. Hoogeboom-Pot, D. Nardi, Univ. of Colorado at Boulder (United States); C. Deeb, S. King, M. Tripp, Intel Corp. (United States); E. Anderson, Lawrence Berkeley National Lab. (United States); M. M. Murnane, H. C. Kapteyn, Univ. of Colorado at Boulder (United States)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>POSTER SESSION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8324 R</td>
<td>Direct-scatterometry-enabled lithography model calibration [8324-54]</td>
<td>C.-Y. Chen, National Taiwan Univ. (Taiwan) and ASML Taiwan Ltd. (Taiwan); K.-Y. Tsai, Y.-T. Shen, Y.-M. Lee, J.-H. Li, National Taiwan Univ. (Taiwan); J. J. Shieh, A. C. Chen, ASML Taiwan Ltd. (Taiwan)</td>
<td></td>
</tr>
<tr>
<td>8324 S</td>
<td>Impacts of overlay correction model and metrology sampling scheme on device yield [8324-57]</td>
<td>C.-F. Chiu, C.-Y. Huang, Nanya Technology Corp. (Taiwan); J. Shieh, T.-B. Chiou, A. Li, ASML Taiwan Ltd. (Taiwan); C.-L. Shih, Nanya Technology Corp. (Taiwan); A. Chen, ASML Taiwan Ltd. (Taiwan)</td>
<td></td>
</tr>
<tr>
<td>8324 U</td>
<td>Defect distribution study at through silicon via (TSV) bottom by scanning white-light interference microscopy [8324-60]</td>
<td>J. Ahn, Samsung Electronics Co., Ltd. (Korea, Republic of); J. Park, Nanometrics Korea Ltd. (Korea, Republic of); D. Ihm, B. Lee, S. Chin, H.-K. Kang, Samsung Electronics Co., Ltd. (Korea, Republic of); J. Noh, Nanometrics Korea Ltd. (Korea, Republic of); P. Ko, T. A. Johnson, Nanometrics Inc. (United States); N. Suk, Nanometrics Korea Ltd. (Korea, Republic of)</td>
<td></td>
</tr>
<tr>
<td>8324 V</td>
<td>A scatterometry-based CD uniformity control solution for Spacer Patterning Technology [8324-61]</td>
<td>J. Lee, C. M. Lim, Hynix Semiconductor Inc. (Korea, Republic of); C.-H. Ryu, ASML Korea Co., Ltd. (Korea, Republic of); M. Kim, H. Kang, Hynix Semiconductor Inc. (Korea, Republic of); H. Cramer, N. Wright, B. Hepp, L. van Reijnen, H. van der Laan, M. E. Marun, P. ten Berge, ASML Netherlands B.V. (Netherlands)</td>
<td></td>
</tr>
</tbody>
</table>
8324 1Y  Integration and automation of DoseMapper in a logic fab APC system: application for 45/40/28nm node [8324-64]

8324 1Z  Recess gate process control by using 3D SCD in 3xm vertical DRAM [8324-65]
M.-F. Kuo, S.-H. Wu, T.-H. Lan, S.-H. Chang, Rexchip Electronics Corp. (Taiwan); E. Wang, H. Chouaib, H. Cheng, Q. Zhao, KLA-Tencor Corp. (United States)

8324 20  Apply multiple target for advanced gate ADI critical dimension measurement by scatterometry technology [8324-66]

8324 21  Fast and accurate scatterometry metrology method for STI CMP step height process evaluation [8324-67]

8324 22  Diffraction-based overlay measurement on dedicated mark using rigorous modeling method [8324-68]

8324 23  Contamination control: removing small particles from increasingly large wafers [8324-69]
A. J. de Jong, J. C. J. van der Donck, T. Huijser, O. Kievit, TNO Delft (Netherlands); R. Koops, N. B. Koster, F. T. Molkenboer, A. M. M. G. Theulings, Delft Univ. of Technology (Netherlands)

8324 24  Overlay quality metric [8324-71]
G. Cohen, E. Amit, D. Klein, D. Kandel, V. B. Levinski, KLA-Tencor Israel (Israel)

8324 25  Weighted least squares regression for advanced overlay control [8324-72]
D. Klein, KLA-Tencor Israel (Israel); J. C. Robinson, KLA-Tencor Corp. (United States); G. Cohen, KLA-Tencor Israel (Israel); C.-C. K. Huang, B. Pierson, KLA-Tencor Corp. (United States)

8324 26  Toward faster and better litho control in high-volume manufacturing [8324-73]
C.-F. Chiu, C.-Y. Huang, W.-B. Wu, C.-L. Shih, Nanya Technology Corp. (Taiwan); H. Huang, J. Manka, D. Choi, A. Lin, D. Tien, KLA-Tencor Corp. (United States)

8324 27  Overlay control methodology comparison: field-by-field and high-order methods [8324-74]
C.-Y. Huang, C.-F. Chiu, W.-B. Wu, C.-L. Shih, Nanya Technology Corp. (Taiwan); C.-C. K. Huang, KLA-Tencor Corp. (United States); H. Huang, KLA-Tencor Corp. (Taiwan); D. Choi, KLA-Tencor Corp. (Korea, Republic of); B. Pierson, J. C. Robinson, KLA-Tencor Corp. (United States)
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A</td>
<td><strong>Multi-level overlay techniques for improving DPL overlay control</strong> [8324-77]</td>
<td>C. Chen, Y. C. Pai, D. Yu, P. Pang, C. C. Yu, United Microelectronics Corp. (Taiwan); R. H.-C. Wu, E. C. J. Huang, M. C.-C. Chen, KLA-Tencor Corp. (Taiwan); D. Tien, KLA-Tencor Corp. (United States); D. Choi, KLA-Tencor Corp. (Korea, Republic of)</td>
</tr>
<tr>
<td>2C</td>
<td><strong>The root cause of ArF resist CD shrinkage induced by defect inspection</strong> [8324-80]</td>
<td>T.-C. Kuo, United Microelectronics Corp. (Taiwan)</td>
</tr>
<tr>
<td>2D</td>
<td><strong>The study of high-sensitive and accurate metrology method by using CD-SEM</strong> [8324-81]</td>
<td>K. Ueda, S. Koshihara, T. Mizuno, Hitachi High-Technologies Corp. (Japan)</td>
</tr>
<tr>
<td>2E</td>
<td><strong>Nanoemitter: ultra-high-resolution electron source for CD metrology</strong> [8324-82]</td>
<td>S. W. Schmidt, C. Penzkofer, B. Irmer, nanotools GmbH (Germany)</td>
</tr>
<tr>
<td>2F</td>
<td><strong>Carbon contamination removal in larger chambers with low-power downstream plasma cleaning</strong> [8324-83]</td>
<td>C. G. Morgan, R. Vane, XEI Scientific, Inc. (United States)</td>
</tr>
<tr>
<td>2H</td>
<td><strong>Evaluation of roughness transfer from Litho to Etch using CD-SEM</strong> [8324-85]</td>
<td>M. Tanaka, T. Ishimoto, H. Kazumi, Hitachi High-Technologies Corp. (Japan); S. Cheng, IMEC (Belgium)</td>
</tr>
<tr>
<td>2I</td>
<td><strong>Line-end gap measurement with YieldStar scatterometer: towards an OPC model calibration</strong> [8324-86]</td>
<td>A.-L. Charley, IMEC (Belgium); M. Dusa, T.-B. Chiou, ASML (Netherlands); P. Leray, S. Cheng, IMEC (Belgium); A. Fumar-Pici, ASML (Netherlands)</td>
</tr>
<tr>
<td>2J</td>
<td><strong>E-beam inspection system for comparison of wafer and design data</strong> [8324-87]</td>
<td>O. D. Patterson, J. Lee, M. D. Monkowski, D. A. Ryan, IBM Microelectronics (United States); S. Chen, C. C. Lee, F. Wang, C. H. Lee, D. Tomlinson, W. Fang, J. Jau, Hermes-Microvision Inc. (United States)</td>
</tr>
<tr>
<td>2K</td>
<td><strong>Electron-beam proximity effect model calibration for fabricating scatterometry calibration samples</strong> [8324-88]</td>
<td>Y.-T. Shen, C.-H. Liu, National Taiwan Univ. (Taiwan); C.-Y. Chen, National Taiwan Univ. (Taiwan) and ASML Taiwan Ltd. (Taiwan); H.-T. Ng, K.-Y. Tsai, F.-M. Wang, C.-H. Kuan, Y.-M. Lee, H.-H. Cheng, J.-H. Li, National Taiwan Univ. (Taiwan); A. C. Chen, ASML Taiwan Ltd. (Taiwan)</td>
</tr>
</tbody>
</table>
How to minimize CD variation and overlay degradation induced by film stress [8324-89]

Improving the measurement performance of angle-resolved scatterometry by use of pupil optimization [8324-90]
F. Wang, Q. Zhang, H. Lu, L. Duan, X. Li, Shanghai Micro Electronics Equipment Co., Ltd. (China)

In-situ critical dimension control during post-exposure bake with spectroscopic ellipsometry [8324-91]
Y. S. Ngo, Y. Qu, A. Tay, T. H. Lee, National Univ. of Singapore (Singapore)

Application of review-SEM to high-resolution inspection for 3xn nodes [8324-93]
J. H. Oh, G. Kwon, D. Y. Mun, H. W. Yoo, Y. S. Choi, T. H. Kim, Hynix Semiconductor Inc. (Korea, Republic of); F. Fukunaga, S. Umehara, M. Nozoe, Hitachi High-Technologies Corp. (Japan)

A non-uniform SEM contour sampling technique for OPC model calibration [8324-94]
T. Shibahara, M. Okkawa, Hitachi, Ltd. (Japan); H. Shindo, H. Sugahara, Y. Hōjyo, Hitachi High-Technologies Corp. (Japan)

Advanced full-automatic inspection of copper interconnects [8324-95]
S. Takada, N. Ban, T. Ishimoto, N. Suzuki, S. Umehara, Hitachi High-Technologies Corp. (Japan); L. Carbonell, N. Heylen, R. Caluwaerts, H. Volders, K. Kellens, Z. Tokei, IMEC (Belgium)

Classification and recognition of diffraction structures using support vector machine in optical scatterometry [8324-96]
J. Zhu, S. Liu, C. Zhang, X. Chen, Huazhong Univ. of Science and Technology (China); Z. Dong, Huazhong Univ of Science and Technology (China)

A study of optical penetration into the micro-periodic structure of semiconductor devices [8324-97]
H. Sekiya, M. Togashi, M. Numata, Y. Usami, Samsung Yokohama Research Institute Co., Ltd. (Japan); S. Cho, Y. Jeong, Y. Yang, Samsung Electronics Co., Ltd. (Korea, Republic of)

Mechanism of photoresist shrinkage investigated by single-line scan of electron beam [8324-98]
T. Ohashi, H. Oizumi, J. Tanaka, Hitachi, Ltd. (Japan); H. Kawada, Hitachi High-Technologies Corp. (Japan)

Reticle intensity-based critical dimension uniformity to improve efficiency for DOMA correction in a foundry [8324-101]
K. W. Tang, T. H. Ng, L. Huang, S. Ng, T. Ku, GLOBALFOUNDRIES Singapore (Singapore); W. T. Chia, L. Chua, W. Li, A. Chin, KLA-Tencor Singapore (Singapore); A. Dayal, T. Vavul, T. Hutchinson, KLA-Tencor Corp. (United States)

Experiment analysis of absolute flatness testing [8324-102]
X. Jia, T. Xing, W. Lin, Z. Liao, Institute of Optics and Electronics (China)
Investigations into an electrostatic chuck design for 450mm Si wafer [8324-105]
G. Kalkowski, T. Peschel, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany); G. Hassall, Oxford Instruments Plasma Technology (United Kingdom); H. Alves, Vistec Electron Beam GmbH (Germany); S. Risse, Fraunhofer-Institut für Angewandte Optik und Feinmechanik (Germany)

Real-time scanning detection system of defects on a photomask by using the light scattering and interference method [8324-106]
S. Lee, B. h. Han, J. H. Jo, Hannam Univ. (Korea, Republic of); H. S. Wee, J. S. Kim, Nano Electro Opics Co., Ltd. (Korea, Republic of)

Overlay target design and evaluation for SADP process [8324-107]
C. W. Yeh, Macronix International Co., Ltd. (Taiwan); C.-T. H. Huang, KLA-Tencor Corp. (United States); K. Lin, C. H. Huang, E. Yang, T. H. Yang, K. C. Chen, C.-Y. Lu, Macronix International Co., Ltd. (Taiwan)

Overcoming silicon limitations: new 3D-AFM carbon tips with constantly high-resolution for sub-28nm node semiconductor requirements [8324-108]
J. Foucher, CEA-LETI (France); S. W. Schmidt, C. Penzkofer, B. Irmer, nanotools GmbH (Germany)

Surface scanning inspection system particle detection dependence on aluminum film morphology [8324-109]
W. Prater, N. Tran, Novellus Systems, Inc. (United States); S. McGarvey, Hitachi High Technologies America, Inc. (United States)

Residual layer thickness control and metrology in jet and flash imprint lithography [8324-110]
S. Singhal, The Univ. of Texas at Austin (United States); R. Attota, NIST (United States); S. V. Sreenivasan, The Univ. of Texas at Austin (United States)

Nanoparticle size and shape evaluation using the TSOM method [8324-112]
B. Damazo, R. Attota, P. Kavuri, A. E. Vladár, NIST (United States)

Photoresist qualification using scatterometry CD [8324-114]
R. Volkovich, Y. Avrahamov, G. Cohen, KLA-Tencor Corp. (Israel); P. Fallon, W. Yin, Dow Electronic Materials (United States)

Improving lithography throughput and minimizing waste using predictive multi-area scheduling [8324-117]

Evaluating diffraction-based overlay [8324-118]
Apply low-temperature plasma in the rework procedure of Al film structure to prevent pattern collapsed and CuAl₂ precipitation [8324-120]
J. Y. Tsai, K. H. Tsao, T. Y. Chen, C. C. Huang, H. H. Yeh, Y. H. Liu, United Microelectronics Corp. (Taiwan)

Automated Heuristic Defect Classification (AHDC) for haze-induced defect growth management and mask requalification [8324-121]
S. Munir, G. Qidwai, Reticle Labs. (United States)
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   - Ofer Adan, Applied Materials (Israel)

3. Overlay Topics in Advanced Optical Microlithography: Joint Session with Conference 8326
   - Bernd Geh, Carl Zeiss SMT Inc./ASML TDC (United States)
   - Christopher J. Raymond, Nanometrics Inc. (United States)

4. Inspection
   - Jason P. Cain, Advanced Micro Devices, Inc. (United States)
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5. LER/LWR
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6. Metrology and Inspection for EUVL: Joint Session with Conference 8322
   - Benjamin D. Bunday, International SEMATECH Manufacturing Initiative (United States)
   - Stanley E. Stokowski, KLA-Tencor Corporation (United States)

7. Scatterometry
   - Yi-sha Ku, Industrial Technology Research Institute (Taiwan)
   - Masafumi Asano, Toshiba Corporation (Japan)

8. Metrology and Inspection for Alternative Lithographic Technologies: Joint Session with Conference 8323
   - Joy Y. Cheng, IBM Almaden Research Center (United States)
   - Martha I. Sanchez, IBM Almaden Research Center (United States)

9. Scanning Probe Metrology
   - Benjamin D. Bunday, International SEMATECH Manufacturing Initiative (United States)
   - Chih-Ming Ke, Taiwan Semiconductor Manufacturing Company Ltd. (Taiwan)
10 Accuracy and Standards
Richard M. Silver, National Institute of Standards and Technology
(United States)
Christopher J. Raymond, Nanometrics Inc. (United States)

11 Metrology and Inspection for TSV and 3D Integration
Yi-sha Ku, Industrial Technology Research Institute (Taiwan)
Richard M. Silver, National Institute of Standards and Technology
(United States)

12 Overlay
Chih-Ming Ke, Taiwan Semiconductor Manufacturing Company Ltd.
(Taiwan)
Vladimir A. Ukraintsev, Nanometrology International, Inc. (United States)

13 SEM
Ofer Adan, Applied Materials (Israel)
Byoung-Ho Lee, SAMSUNG Electronics Company, Ltd. (Korea, Republic of)

14 Lithography Process Control
John A. Allgair, GLOBALFOUNDRIES Inc. (United States)
Ofer Adan, Applied Materials (Israel)

15 Novel Technologies and Late Breaking News
Alexander Starikov, I&I Consulting (United States)
Matthew J. Sendelbach, IBM Corporation (United States)

Poster Session
Matthew J. Sendelbach, IBM Corporation (United States)
Alexander Starikov, I&I Consulting (United States)
The Diana Nyyssonen Memorial Award for Best Paper

Dr. Diana Nyyssonen was a pioneer of dimensional metrology. Diana’s interests in optics and metrology go back to her 1960s job, alongside G. O. Reynolds, J. B. DeVelis, and B. J. Thompson, at Technical Operations in Burlington, Massachusetts. She joined the Image Optics and Photography Section of the Metrology Division at the National Bureau of Standards (NBS) in 1969. Sponsored by NBS, she attended the Institute of Optics at the University of Rochester, completing her Ph.D. and Thesis on microdensitometry of photographic emulsions in 1975.

Dr. Nyyssonen’s modeling of thin films observed by a microscope demonstrated that line/space width much smaller than two-point resolution limits can be measured. She produced accurate model-based measurements in the photomasks, establishing the first critical dimension standards for the microelectronics industry and the foundation of today’s dimensional metrology. Diana left NBS in 1985 to form her own metrology company, then joined IBM in East Fishkill, New York.

Not stopping the development of accurate optical modeling of thick films with NBS and other teams, she started projects on metrology with scatterometry and interference microscopy, modeled imaging in low-voltage CD-SEM, and spearheaded the establishment of CD-AFM. Dr. Diana Nyyssonen’s personal contributions to the field, as well as her collaborations and mentorships in industry, consortia, and academia, accelerated and influenced the development of basic technology and metrology applications with optical microscopy and scatterometry, SEM, and AFM.

SPIE conference on Metrology, Inspection, and Process Control for Microlithography is the leading international forum for the discussion and presentation of technical advances in the broader field of semiconductor metrology. The Diana Nyyssonen Memorial Award for the Best Paper at this conference recognizes the most significant current contributions.

Due to the conference’s long history, significant attendance and high paper counts, to win this award requires a very significant new contribution to the field. The selection of the best paper is initiated during the conference by nomination, followed by extensive review by the program committee. It is based on both the technical merit and persuasiveness of the oral presentation, and the overall quality of the published paper. Past award winners include leading international researchers in the area of semiconductor metrology and process control, whose contributions have fundamentally improved the way semiconductors are manufactured.

We are pleased to honor the winners of the Diana Nyyssonen Memorial Award for the Best Paper of 2011, as well as those who have won in previous years:
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