



TUESDAY, October 15, 2002

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TIME	TITLE	AUTHOR(S)	COMPANY
08:00	Opening remarks	Kevin Kemp	<i>International SEMATECH</i>
08:20	Keynote speaker	Peter Silverman	<i>Intel Corporation</i>
SESSION 1: MASK I			
09:15	Characterizing the Flatness, Wedge, & Homogeneity of EUV Lithography Mask Substrates	<u>G.E. Sommargren</u> , K.L. Blaedel, <u>M.A. Johnson</u>	<i>Lawrence Livermore National Laboratory</i>
09:40	Fabrication of Low-Defect Standard Format Mask Blanks for EUV Lithography	<u>J.A. Folta</u> ¹ , P.A. Kearney ¹ , C.C. Larson ¹ , E.E. Fisch ² , K. Racette ²	¹ <i>Lawrence Livermore National Laboratory</i> , ² <i>IBM Microelectronics</i>
10:00	High Precision Polishing of EUV Photoblanks with Magneto-Rheological Finishing (MRF)	<u>M. Tricard</u> , D. Golini, M. DeMarco, T. Mooney	<i>QED Technologies</i>
10:20	Impact of Improved Technologies on the Quality of EUV Lithography Mask Blanks from Schott Lithotec	<u>L. Aschke</u> ¹ , H. Becker ¹ , S. Kirchner ¹ , T. Leutbecher ¹ , N. Olschewski ¹ , H. Sauerbrei ¹ , M. Schiffler ¹ , K. Walter ¹ , G. Hess ¹ , K. Knapp ¹ , F. Lenzen ¹ , P. Rudakoff ¹ , L. Dieu ² , F. Kalk ²	¹ <i>Schott Lithotec AG</i> , ² <i>DuPont Photomask</i>
10:55	Mitigation of Mask Substrate Defects via Smoothing	<u>P.B. Mirkarimi</u> ¹ , E.A. Spiller ¹ , D.G. Stearns ¹ , S.L. Baker ¹ , V. Sperry ¹ , P. Naulleau ² , E. Gullikson ²	¹ <i>Lawrence Livermore National Laboratory</i> , ² <i>Lawrence Berkeley National Laboratory</i>
11:15	EUV Lithography Mask Blank Repair	<u>A. Barty</u> ¹ , S. Hau-Riege ¹ , P.B. Mirkarimi ¹ , D.G. Stearns ¹ , D. Sweeney ¹ , H. Chapman ¹ , M. Clift ² , M. Yi ³	¹ <i>Lawrence Livermore National Laboratory</i> , ² <i>Sandia National Laboratories</i> , ³ <i>Lawrence Berkeley National Laboratory</i>
11:35	LUNCH - EUROPEAN REGIONAL UPDATE	Rob Hartman	<i>ASML</i>

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SESSION 2: METROLOGY I			
13:00	Development Plan of EUV Wavefront Metrology System in ASET	<u>K. Murakami</u> , J. Saito, K. Ota, H. Kondo, M. Ishii, J. Kawakami, T. Oshino, K. Sugisaki, Y. Zhu, M. Hasegawa, Y. Sekine, S. Takeuchi, C. Ouchi, O. Kakuchi, Y. Watanabe, T. Hasegawa, S. Hara, A. Suzuki	<i>ASET</i>
13:25	Critical Dimension Metrology for the EUV Lithography Era	J. Roberts, H. Cao, <u>B.J. Rice</u> , M.Y. Chan, M. Grumski, R. Eiserer, J. Swanson	<i>Intel Corporation</i>
13:45	High-Accuracy At-Wavelength EUV Metrology at PTB	F. Scholze, R. Klein, R. Thornagel, J. Tummler, <u>G. Ulm</u>	<i>Physikalisch-Technische Bundesanstalt</i>
14:05	LPP Based Reflectometer for Characterization of EUV Lithography System	<u>A. Miyake</u> , T. Miyachi, M. Amemiya, T. Hasegawa, N. Ogushi, T. Yamamoto, F. Masaki, Y. Watanabe	<i>Canon Corporation</i>
14:25	Feasibility Study of At Wavelength EUV Wavefront Lateral Shearing Interferometer	<u>Y. Zhu</u> , K. Sugisaki, K. Murakami, O. Kazuya, H. Kondo, M. Ishii, J. Kawakami, O. Tetsuya, J. Saito, A. Suzuki, M. Hasegawa, Y. Sekine, S. Takeuchi, C. Ouchi, O. Kakuchi, Y. Watanabe T. Hasegawa, S. Hara	<i>ASET</i>
14:45	VNL Research in Interferometry for EUV Optics	<u>K.A. Goldberg</u> ¹ , P. Naulleau ¹ , J. Bokor ¹⁻² , H.N. Chapman ³ , A. Barty ³ , D. Phillion ³ , G. Sommargren ³	<i>¹Lawrence Berkeley National Laboratory, ²University of California at Berkeley, ³Lawrence Livermore National Laboratory</i>

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TIME	TITLE	AUTHOR(S)	COMPANY
SESSION 3: SOURCE I			
15:20	Requirements for Next Generation Lithography EUV Sources	<u>V. Banine</u> , H. Franken, R. Gontin, R. Moors	ASML
15:45	High-Power, Laser-Produced Plasma Source Operation in the ETS	<u>W.P. Ballard</u> ¹ , R. Lafon ¹ , L. Bernardez ¹ , R. Anderson ¹ , A. Leung ¹ , K. Williams ¹ , Y. Perras ¹ , R. Briston ² , H. Shields ³	¹ Sandia National Laboratories, ² Intel Corporation, ³ TRW
16:05	Intense In-Band EUV Source Based on High Power Laser Produced Plasma (LPP)	S. Ellwi, A. Comley, I. Henderson, <u>M. Egan</u> , I. Mercer	Powerlase
16:25	New EUV Light Source Development Project in Japan	A. Endo ¹ , H. Sato ² , <u>H. Komori</u> ³ , Y. Watanabe ² , H. Kondo ³ , H. Mizoguchi ¹ , T. Tomie ⁴ , K. Toyoda ⁵ , Y. Horiike ⁶	¹ EUVL, ² Canon Corporation, ³ Nikon Corporation, ⁴ AIST, ⁵ Tokyo University of Science, ⁶ The University of Tokyo
16:45	Study on EUV Emission Properties of Laser-Produced Plasma at ILE, Osaka	<u>H. Nishimura</u> ¹ , N. Miyanaga ¹ , T. Norimatsu ¹ , K. Nagai ¹ , H. Nagatomo ¹ , V. Zhakhovckii ¹ , K. Nishihira ¹ , S. Sakabe ¹ , S. Uchida ¹ , Y. Shimada ² , H. Furukawa ² , M. Nakatsuka ¹ , Y. Izawa ¹ , T. Yamanaka ¹	¹ Osaka University, ² Institute for Laser Technology
17:05	Characterization of a Dense Plasma Focus Device As A Light Source for EUV Lithography	<u>I.V. Fomenkov</u> , S.T. Melnychuk, R.M. Ness, I.R. Oliver, O.V. Khodykin, N.R. Bowering	Cymer, Inc.

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TIME	TITLE	AUTHOR(S)	COMPANY
SESSION 4: OPTICS I			
08:00	Lithographic Characterization of the ETS Set-2 Optic at the Advanced Light Source Static Microfield Exposure Station	<u>P. Naulleau</u> ¹ , K.A. Goldberg ¹ , E.H. Anderson ¹ , P. Batson ¹ , J. Bokor ¹⁻² , P. Denham ¹ , B. Harteneck ¹ , B. Hoef ⁴ , K. Jackson ¹ , D. Olyrick ¹ , S. Rekawa ¹ , F. Salmassi ¹ , S. Baker ³ , H. Chapman ³ , P. Mirkarimi ³ , E. Spiller ³ , C. Walton ³ , D. O'Connell ⁴ , P.-Y. Yan ⁵ , G. Zhang ⁵	¹ Lawrence Berkeley National Laboratory, ² University of California at Berkeley, ³ Lawrence Livermore National Laboratory, ⁴ Sandia National Laboratories, ⁵ Intel Corporation
08:25	Comparison of Different Simulation Codes for EUV Lithography	<u>P. Schiavone</u> ¹ , V. Farys ¹ , E.M. Gullikson ² , G. Graner ³	¹ CEA-G, ² Lawrence Berkeley National Laboratory, ³ CNRS-URA
08:45	Development of EUV Optics for High NA Small Field Exposure System (HiNA)	<u>T. Oshino</u> ¹ , K. Sugisaki ¹ , H. Kondo ¹ , K. Ota ¹ , K. Murakami ¹ , H. Oizumi ² , I. Nishiyama ² , S. Okazaki ²	¹ Nikon Corporation, ² ASET
09:05	Optics for EUV Lithography	<u>P. Kuerz</u> , H.-J Mann, M. Antoni, W. Singer, M. Muhlbeier, F. Melzer, M. Weiss, S. Fritzsche, E. Sohmen, U. Muller, A. Dallmeyer, M. Wedowski, G. Seitz, S. Schulte, F. Eisert, S. Burkart, M. Weiser, S. Stacklies, U. Dinger, A. Seifert, S. Mullender, W. Kaiser	Carl Zeiss SMT AG
09:25	Advanced Simulation Approaches for EUV Lithography	<u>A. Erdmann</u> ¹ , C.K. Kalus ² , T. Schmoller ² , A. Vial ¹ , A. Wolter ³	¹ Fraunhofer Institute, ² Sigma-C GmbH, ³ Infineon Technologies AG
09:45	An All Reflective Fly's Eye Illuminator	<u>K. Thompson</u> ¹ , B.G. Crowther ¹ , D.B. Koch ¹ , J.M. Kunick ¹ , J.P. McGuire ¹ , R. Narned ² , R. Gontin ²	¹ Optical Research Associates, ² ASML

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SESSION 5: MATERIALS & CONTAMINATION			
10:20	Rates of Optic Contamination in the Engineering Test Stand (ETS)	<u>L. Klebanoff</u> , S.J. Haney, P.A. Grunow, W.M. Clift, A.H. Leung	<i>Sandia National Laboratories</i>
10:45	Substrate Material Fitting the Demands for EUV Mask & Optics	<u>J. Alkemper</u> ¹ , I. Mitra ¹ , R. Muller ¹ , S. Ritter ¹ , H. Hack ¹ , K. Megges ¹ , L. Aschke ² , M.J. Davis ³	¹ <i>Schott Glas</i> , ² <i>Schott Lithotec AG</i> , ³ <i>Schott Glass Technologies USA</i>
11:05	Atomic Precision Multilayer Coatings for Beta-Class EUV Lithography Systems	<u>R. Soufli</u> ¹ , E. Spiller ¹ , M. Schmidt ¹ , J. Robinson ¹ , M. Johnson ¹ , S. Baker ¹ , E. Gullikson ²	¹ <i>Lawrence Livermore National Laboratory</i> , ² <i>Lawrence Berkeley National Laboratory</i>
11:25	Method to Remove Mo/Si Multilayers Without Damaging Starting Substrate	<u>P.J.S. Mangat</u> , S.-I. Han, J. Wasson, A. Talin, A. Hooper, D. Convey	<i>Motorola Corporation</i>
11:45	Molecular Anisotropy in EUV Photoresist Materials	R. Meagley, A.J. Schafer, <u>J. Roberts</u>	<i>Intel Corporation</i>
12:05	LUNCH - ASIA REGIONAL UPDATE	Professor Yasuhiro Horiike	<i>Tokyo University</i>
SESSION 6: SOURCE II			
13:30	Gas Discharge & Laser Produced Plasma Sources for EUV Lithography	U. Stamm	<i>Xtreme Technologies GmbH</i>
13:55	Progress & Current Performance for Laser Produced Plasma EUV Power	H. Shields	<i>CEO Lasers</i>

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TIME	TITLE	AUTHOR(S)	COMPANY
SESSION 6: SOURCE II (continued)			
14:15	Status of the HCT EUV Source	J. Pankert ² , K. Bergmann ¹ , J. Klein ¹ , W. Neff ¹ , O. Rosier ¹ , S. Seiwert ¹ , C. Smith ¹ , R. Apetz ² , J. Jonkers ² , M. Loken ² , D. Vaudrevange ² , G. Derra ³ , T. Krucken ³ , P. Zink ³ , E. Bosch ³	¹ Fraunhofer Institut fur Lasertechnik, ² Phillips Extreme UV GmbH, ³ Philips Research
14:35	Extreme Ultraviolet Source Development	<u>M. McGeoch</u> , C. Pike	PLEX LLC
14:55	Status of the Liquid-Xenon-Jet Laser-Plasma EUV Source	<u>B.A.M. Hansson</u> ¹ , L. Rymell ¹ , M. Berglund ¹ , O. Hemberg ¹ , E. Janin ¹ , S. Mosesson ¹ , J. Thoresen ¹ , J. Wallin ¹ , B. Jacobsson ¹ , H.M. Hertz ²	¹ Innolite AB, ² Royal Institute of Technology Sweden
SESSION 7: MASK II			
15:30	EUV Scattering From Mask Substrate Roughness	<u>E. Gullikson</u> ¹ , K. Blaedel ² , C. Larson ² , S.L. Baker ² , J.S. Taylor ²	¹ Lawrence Berkeley National Laboratory, ² Lawrence Livermore National Laboratory
15:55	Implementation Challenges of Cross-Field Flare Compensation for EUV Masks	<u>C. Krautschik</u> ¹ , M. Chandhook ² , I. Nishiyama ¹	¹ ASET, ² Intel Corporation
16:15	EUV Mask Fabrication at the Reticle Technology Center (RTC)	<u>L. Dieu</u> ¹ , E.L. Fanucchi ³ , G.H. Hughes ¹ , D.L. Mellenthin ¹ , B. LaFontaine ² , H.J. Levinson ² , P.J.S. Mangat ³ , S.D. Hector ³ , E.A. Delarosa ⁴	¹ DuPont Photomasks/RTC LLC, ² AMD, ³ Motorola Corporation, ⁴ Micron Technology
16:35	EUV Lithography Square Mask Patterning With TaN Absorber	<u>P.-Y. Yan</u> ¹ , A. Ma ¹ , Y.-C. Huang ² , B. Stoehr ²	¹ Intel Corporation, ² Applied Materials
16:55	Defect Production & Transport in an Ultra-Clean IBS Coating Process	<u>C.C. Walton</u> ¹ , J.A. Folta ¹ , P.A. Kearney ¹ , J.C. Davidson ¹ , C.L. Larson ¹ , D.G. Stearns ² , D.W. Sweeney ¹ , P.B. Mirkarimi ¹	¹ Lawrence Livermore National Laboratory, ² Orthosport, Inc.
17:15	Performance of EUV Masks: Simulated Influence of Mask Parameters on the EUV Process Window	A. Wolter ¹ , F.-M. Kamm ¹ , <u>S. Wurm</u> ²	¹ Infineon Technologies AG, ² Infineon Corporation



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TIME	TITLE	AUTHOR(S)	COMPANY
SESSION 8: MASK III			
07:45	Closing remarks and update on Critical Issues	Kevin Kemp	<i>International SEMATECH</i>
08:00	Aerial Image Microscopes for the Inspection of Defects in EUV Mask Blanks	<u>A. Barty</u> ¹ , J. Taylor ¹ , R. Hudyma ² , H. Chapman ¹ , D. Sweeney ¹ , G. Shelden ³	¹ <i>Lawrence Livermore National Laboratory</i> , ² <i>Paragon Optics</i> , ³ <i>International SEMATECH</i>
08:25	Pattern Inspection of EUV Masks using DUV Light	<u>T. Liang</u> , E. Tejnil, A. Stivers	<i>Intel Corporation</i>
08:45	Evaluation of the Capability of a Multibeam Confocal Inspection System for Inspection of EUV Lithography Mask Blanks	<u>A. Stivers</u> ¹ , <u>T. Liang</u> ¹ , M. Penn ¹ , B. Lieberman ¹ , G. Shelden ² , J. Folta ³ , C. Larson ³ , P. Mirkarimi ³ , C. Walton ³ , E. Gullikson ⁴ , M. Yi ⁴	¹ <i>Intel Corporation</i> , ² <i>International SEMATECH</i> , ³ <i>Lawrence Livermore National Laboratory</i> , ⁴ <i>Lawrence Berkeley National Laboratory</i>
09:05	Understanding Defects On EUV Lithography Mask Blanks	E. Fisch ¹ , <u>K. Racette</u> ¹ , J. Folta ² , C. Larson ²	¹ <i>IBM Microelectronics</i> , ² <i>Lawrence Livermore National Laboratory</i>
09:25	Study of Process-Induced Defects During EUV Blank Preparation	<u>E. Quesnel</u> , J. Hue, V. Muffato, C. Pelle, P. Lamy	<i>LETI/CEA.G-DOPT</i>
10:00	Reticle Handling & Particle Contamination Control for EUV Lithography	<u>B. Blum</u> , S. Del Puerto, A. Massar, G. Hareens	<i>ASML</i>
10:20	Cost-of-Ownership Implications of Protecting EUV Mask From Defects Without Pellicles	<u>S. Hector</u> ¹ , P. Seidel ²	¹ <i>Motorola Corporation</i> , ² <i>International SEMATECH</i>

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TIME	TITLE	AUTHOR(S)	COMPANY
SESSION 9: TOOL I			
10:45	EUV System Learning in the Engineering Test Stand	<u>D.J. O'Connell</u> ¹ , S.H. Lee ⁵ , W.P. Ballard ¹ , W.C. Replogle ¹ , G.D. Kubiak ³ , L.E. Klebanoff ¹ , J.E.M. Goldsmith ¹ , D.A. Tichenor ¹ , J.B. Wronosky ² , H.N. Chapman ³ , J.S. Taylor ³ , K.A. Goldberg ⁴ , P. Naulleau ⁴	¹ Sandia National Laboratories Livermore, ² Sandia National Laboratories Albuquerque, ³ Lawrence Livermore National Laboratory, ⁴ Lawrence Berkeley National Laboratory, ⁵ Intel Corporation
11:10	EUV Microexposure Tool Update	<u>D. Stark</u> ¹ , K. Dean ¹ , P. Gabella ¹ , J. Meute ¹ , J. Cashmore ² , M. Whitfield ² , A. Brunton ² , M. Gower ²	¹ International SEMATECH, ² Exitech, Ltd.
11:30	Update on the EUV Lithography Alpha Tool	<u>H. Meiling</u> ¹ , R. Hartman ¹ , R. Moore ¹ , M. Renkens ² , H. Werij ³ , Peter Kurz ⁴	¹ ASML, ² Philips CFT, ³ TNO-TPD, ⁴ Carl Zeiss
11:50	LUNCH - NORTH AMERICA REGIONAL UPDATE	Chuck Gwyn	Intel Corporation

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