

MUMIT KHAN

RESEARCH AREAS

- *Cloud Computing*: Development of tools to manage, monitor and optimize cloud infrastructure. Currently working with Eucalyptus, and looking at OpenStack as well.
- *Natural Language Processing*: Development of advanced Natural Language Processing tools for Bangla; development of Bangla lexical resources, morphological analyzer, spelling checker, speech synthesizer and recognizer, statistical machine translation, optical character recognition software.
- *Nanolithography*: Physical model development of x-ray, electron and extreme ultraviolet lithographic processes, from source generation to pattern transfer.
- *Computational Sciences*: Computational methods in physics and engineering, wavefront engineering, multi-grid methods, optimization techniques for complex systems, computational geometry, visualization methods for large datasets, optical and x-ray optical ray tracing, solid geometry for CAD applications.
- *Software Engineering*: Development and application of software engineering methodologies to physical modeling and simulation, large software framework design, distributed and parallel processing, object-oriented design methodologies.

PROFESSIONAL EXPERIENCE

2003 – Present BRAC University Dhaka, Bangladesh
2009 – Chairperson, Computer Science and Engineering
2008 – Professor, Computer Science and Engineering
2005 – Chair, IT Committee (CTO)
2004 – 2008 Associate Professor, Computer Science and Engineering
2003 – 2004 Assistant Professor, Computer Science and Engineering
2004 – Head, Center for Research on Bangla Language Processing
Professor and Chairperson, Computer Science and Engineering
Head, Center for Research on Bangla Language Processing

2006 – 2008 UW Center for Nano-Technology Madison, WI
Honorary Fellow

1995 – 2003 Center for Nano-Technology Madison, WI
Leader, Modeling and Simulation

- Lead the development of physical models for nano- and bio-technology, software framework and architecture.
<http://www.nanotech.wisc.edu/>
- Technology transfer to member companies - intellectual property as well as training of scientists and engineers.
- Supervise student and staff researchers, and manage computing facilities.

1991 – 1995 Center for X-ray Lithography Madison, WI
Member of the Research Staff

- Develop and maintain **CXrL Toolset**, a suite of software tools to model, simulate and optimize x-ray lithography process.

- Design and develop **EXCON**, an object-oriented simulation framework for managing large experiments. **EXCON** provides a visual language for creating a network of objects that attach to a *software bus* and communicate via *ports*; these objects are then distributed over a wide area network.
- Lead development of **SHADOW**, a de-facto standard x-ray optical design tool used by the Synchrotron Radiation community.
- Teach programming languages (C, C++, Tcl/Tk, Python, Java) and idioms.

EDUCATION

1998 – 2003 University of Wisconsin-Madison Madison, WI

Ph.D. Software Engineering in Computational Sciences

- Ph.D. Thesis title: *Virtual Lithography Laboratory: A Software Framework for Physics-Based Modeling and Simulation.*

1989 – 1991 University of Wisconsin-Madison Madison, WI

M.S. Electrical and Computer Engineering

- M.S. Thesis title: *Object-oriented Integration of Process Modeling Tools in X-ray Lithography.*

1985 – 1988 University of Wisconsin-Madison Madison, WI

B.S. Electrical and Computer Engineering

- Dean's Honor List – each semester
- Graduated with Distinction

PROFESSIONAL ACTIVITIES

- 2011-. Member of the University Grants Commission (UGC) committee to draft the proposal for Digital University, a research-based post-graduate university specializing in science and technology.
- 2011. Member of the Prime Minister's ICT Taskforce advisory team for mobile phone localization.
- 2011. Member of the Bangladesh Bank's advisory team to develop the national e-payment gateway.
- 2008. Leader of the editing team, National ICT Policy 2009.
- 2008. Served as an expert on the Election Commission committee to investigate the keyboard and font issues in the voter ID platform.
- 2008-. Assessment Team Leader in the ICT Professional Skills Assessment and Enhancement Program (IPSAEP).
- 2008-. Core team member in establishing the Asian e-Governance Forum.
- 2007-. Consultant to Central Depository Bangladesh Limited (CDBL) to evaluate the cloud computing infrastructure.
- 2007-2011. Regional research leader of IDRC PAN Localization Project's Research Component for Content – a multi-country and multi-language content development project spread over 11 countries.
- 2007. Participated in the e-Governance Interoperability Framework (e-GIF) discussions convened by UNDP.
- 2003-. Member of the editorial team of BRAC University Journal.
- 2004-2007. Member of the BRAC University Initiative for Learning and Development (BUILD), the apex planning body of the university.

INVITED TALKS

1. **Democratic e-Participation in The Developing World**, M. Khan, *PAN-GOV, Manila, June 2008*.
2. **Local Language Content Development**, M. Khan, *PAN Localization Regional Meeting, Vientiane, May 2008*.
3. **Advances in Lithography for Nanostructures**, M. Khan, G. Han, and F. Cerrina, *Midwest Microscopy and Microanalysis Society Meeting, Madison, WI, October 2002*.
4. **Extendibility of proximity XRL: roadmap for 35 nm and beyond**, M. Khan and F. Cerrina, *MRS 2001 Fall Meeting, Boston, MA, November 2001*.
5. **SHADOW: Current Status**, M. Khan, S. Singh-Gasson, and F. Cerrina, *Synchrotron Radiation Instrumentation (invited poster), Stanford, CA, September 1999*.
6. **Advances in ray tracing of x-ray optical elements**, M. Khan, S. Singh-Gasson, and F. Cerrina, *SPIE Annual Meeting, Denver, CO, September 1999*.
7. **SHADOW: Design Tool for X-ray Optics**, M. Khan and F. Cerrina, *Workshop on Neutron Scattering Instrument Design, LBL, Berkeley, CA, September 1996*.
8. **XRL Modeling**, M. Khan, S. B. Bollepalli and F. Cerrina, *NTT, Atsugi, Japan, August 1996*.
9. **X-ray Lithography Process Modeling**, M. Khan and F. Cerrina, *Institute for System Research (invited seminar), University of Maryland, College Park, June 1996*.
10. **XRL Exposure Window Optimization Using CXrL Toolset**, M. Khan and F. Cerrina, *IEEE Lithography Simulation Workshop, Quebec City, Canada, September 1994*.
11. **Issues in Modeling Tool Integration**, M. Khan and F. Cerrina, *SEMATECH Litho WorkBench Review Meeting, Austin, Texas, March 1993*.
12. **SHADOW on UNIX**, M. Khan, C. Welnak and F. Cerrina, *European Synchrotron Research Facility, Grenoble, France, January 1991*.

PUBLICATIONS

1. **Bangla Text to Speech using Festival**, Firoj Alam, S.M. Murtoza Habib and Mumit Khan, *Proc. Conference on Human Language Technology for Development (HLTD 2011)*, Alexandria, Egypt, May 2-5, (2011).
2. **Phonetically Balanced Bangla Speech Corpus**, S. M. Murtoza Habib, Firoj Alam, Rabia Sultana, Shammur Absar Chowdhury, and Mumit Khan, *Proc. Human Language Technology for Development (HLTD 2011)*, Alexandria, Egypt, May 2-5, (2011).
3. **Development of Annotated Bangla Speech Corpora**, Firoj Alam, S. M. Murtoza Habib, Dil Afroza Sultana and Mumit Khan, *Proc. Spoken Language Technologies for Under-resourced language (SLTU'10)*, Universiti Sains Malaysia, Penang, Malasia, May 3-5, (2010).
4. **Example Based English-Bengali Machine Translation Using WordNet**, Khan Md. Anwarus Salam, Mumit Khan and Tetsuro Nishino, *Proc. Triangle Symposium on Advanced ICT 2009 (TriSAI 2009)*, Tokyo, Japan, October 28-30, (2009).
5. **An Open Source Tesseract Based Optical Character Recognizer for Bangla Script**, Md. Abul Hasnat, Muttikinur Rahman Chowdhury and Mumit Khan, *Proc. 10th International Conference on Document Analysis and Recognition (ICDAR)*, pp. 671-675, (2009).
6. **Integrating Bangla script recognition support in Tesseract OCR**, Md. Abul Hasnat, Muttakinur Rahman Chowdhury and Mumit Khan, *Proc. Conference on Language and Technology 2009 (CLT09)*, Lahore, Pakistan, January 22-24, (2009).
7. **Rule based segmentation of lower modifiers in complex Bangla scripts**, Md. Abul Hasnat and Mumit Khan *Proc. Conference on Language and Technology 2009 (CLT09)*, Lahore, Pakistan, January 22-24, (2009).

8. **Elimination of splitting errors in printed Bangla scripts**, Md. Abul Hasnat and Mumit Khan *Proc. Conference on Language and Technology 2009 (CLT09)*, Lahore, Pakistan, January 22-24, (2009).
9. **Text Normalization System for Bangla**, Firoj Alam, S. M. Murtoza Habib and Mumit Khan, Conference on Language and Technology 2009 (CLT09), NUCES, Lahore, Pakistan, January 22-24, 2009. [poster]
10. **A Computational Grammar of Bangla using the HPSG formalism: Developing the First Phase**, Naira Khan and Mumit Khan, *Dhaka University Journal of Linguistics*, Vol.1(1) 2008, 199-220.
11. **Detecting flames and insults in text**, Altaf Mahmud, Kazi Zubair Ahmed and Mumit Khan, *Proc. 6th International Conference on Natural Language Processing (ICON-2008)*, CDAC Pune, India, December 20-22, (2008).
12. **BWN - A Software Platform for Developing Bengali WordNet**, Farhana Faruque and Mumit Khan, *Proc. International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering (CISSE 08)*, December 5-13, (2008).
13. **Acoustic Analysis of Bangla Consonants**, Firoj Alam, S. M. Murtoza Habib and Mumit Khan, *Proc. Spoken Language Technologies for Under-resourced language (SLTU'08)*, Hanoi, Vietnam, May 5-7, (2008).
14. **A High Performance Domain Specific OCR for Bangla Script**, Md. Abul Hasnat, S. M. Murtoza Habib and Mumit Khan, *Proc. ICS²E*, (2007).
15. **Isolated and Continuous Bangla Speech Recognition Implementation, Performance and application perspective**, Md. Abul Hasnat, Jabir Mowla and Mumit Khan, *Proc. Statistical Natural Language Processing, Pattaya, Thailand, December*, (2007).
16. **Building a Foundation of HPSG-based Treebank on Bangla Language for Probabilistic Analysis**, Altaf Mahmud and Mumit Khan, *Proc. 10th ICCIT, Dhaka, December*, (2007).
17. **Comparison of Unigram, Bigram, HMM and Brill's POS Tagging Approaches for some South Asian Languages**, Fahim Muhammad Hasan, Naushad UzZaman and Mumit Khan, *Proc. Conference on Language and Technology (CLT07)*, Pakistan, August 7 - 11, (2007).
18. **A Light Weight Stemmer for Bengali and Its Use in Spelling Checker**, Md. Zahurul Islam, Md. Nizam Uddin and Mumit Khan, *Proc. 1st Intl. Conf. on Digital Comm. and Computer Applications (DCCA 2007)*, Irbid, Jordan, March 19-23, 2007.
19. **Segmentation free Bangla OCR using HMM: Training and Recognition**, Md Abul Hasnat, S M Murtoza Habib and Mumit Khan, *Proc. 1st Intl. Conf. on Digital Comm. and Computer Applications (DCCA 2007)*, Irbid, Jordan, March 19-23, 2007.
20. **Text To Speech for Bangla Language using Festival**, Firoj Alam and Mumit Khan, *Proc. 1st Intl. Conf. on Digital Comm. and Computer Applications (DCCA 2007)*, Irbid, Jordan, March 19-23, 2007.
21. **Error-tolerant Finite-state Recognizer and String Pattern Similarity Based Spell-Checker for Bengali**, M. Asadullah, M. Z. Islam, and M. Khan, *Proc. ICON 2007 (accepted for publication)*, (2007).
22. **Extreme Ultraviolet Holographic Lithography: Initial Results**, Y. Cheng, A. Isoyan, J. Wallace, M. Khan, and F. Cerrina, *Applied Physics Letters*, **90**, 023116, (2007). [Peer reviewed]
23. **Infrastructure for Bangla Information retrieval in the context of ICT for Development**, N. Haque, Md. H. Ali, M. Khan, and M. S. Abdullah, *Proc. ICS²E*, (accepted for publication), (2006).
24. **Comparison of different POS Tagging Techniques (n-gram, HMM and Brill's tagger) for Bangla**, F. Hasan, N. UzZaman, and M. Khan, *Proc. ICS²E*, (accepted for publication), (2006).

25. **JKimmo: A Multilingual Computational Morphology Framework for PC-KIMMO**, M. Z. Islam and M. Khan, *Proc. 9th ICCIT, (accepted for publication), (2006)*.
26. **Bangla Text Input and Rendering Support for Short Message Service on Mobile Devices**, T. Rownok, M. Z. Islam, and M. Khan, *Proc. 9th ICCIT, (accepted for publication), (2006)*.
27. **Minimally Segmenting High Performance Bangla OCR using Kohonen Network**, A. M. S. Shatil and M. Khan, *Proc. 9th ICCIT, (accepted for publication), (2006)*.
28. **Skew correction of Bangla script using Radon Transform**, M. Habib, N. Noor and M. Khan, *Proc. 9th ICCIT, (accepted for publication), (2006)*.
29. **N-gram based Statistical Grammar Checker for Bangla and English**, M. J. Alam, N. UzZaman, and M. Khan, *Proc. 9th ICCIT, (accepted for publication), (2006)*.
30. **History (forward n-gram) or Future (backward n-gram)? Which model to consider for n-gram analysis in Bangla?**, N. Khan, M. T. Habib, M. J. Alam, R. Rahman, N. UzZaman, and M. Khan, *Proc. 9th ICCIT, (accepted for publication), (2006)*.
31. **Rule based Automated Pronunciation Generator**, A. Mosaddeque, N. UzZaman, and M. Khan, *Proc. 9th ICCIT, (accepted for publication), (2006)*.
32. **Analysis of n-gram based text categorization for Bangla in a newspaper corpus**, M. Mansur, N. UzZaman, and M. Khan, *Proc. 9th ICCIT, (accepted for publication), (2006)*.
33. **Analysis and Observations From a Bangla news corpus**, Y. Arafat, Md. Z. Islam, N. UzZaman, and M. Khan, *Proc. 9th ICCIT, (accepted for publication), (2006)*.
34. **Developing a Computational Grammar for Bengali using the HPSG Formalism**, N. Khan and M. Khan, *Proc. 9th ICCIT, (accepted for publication), (2006)*.
35. **GIS Based Real Time Traveler Information System: An Efficient Approach to Minimize Travel Time Using Available Media**, A. Hasnat, M. M. Haque, and M. Khan, *Proc. 9th ICCIT, (accepted for publication), (2006)*.
36. **A Comprehensive Bangla Spelling Checker**, N. UzZman and M. Khan, *Proc. Intl. Conference on Computer Processing of Bangla (ICCPB 2006), Dhaka, Bangladesh, February, (2006)*.
37. **A Complete English-to-Bangla Transliteration Scheme**, N. UzZman and M. Khan, *Proc. Intl. Conference on Computer Processing of Bangla (ICCPB 2006), Dhaka, Bangladesh, February, (2006)*.
38. **Collaborative Lexicon Development for Bangla**, A. I. Sarkar, D. S. H. Pavel, and M. Khan, *Proc. Intl. Conference on Computer Processing of Bangla (ICCPB 2006), Dhaka, Bangladesh, February, (2006)*.
39. **A Proposed Automated Extraction Procedure of Bangla Text for Corpus Creation in Unicode**, D. S. H. Pavel, A. I. Sarkar, and M. Khan, *Proc. Intl. Conference on Computer Processing of Bangla (ICCPB 2006), Dhaka, Bangladesh, February, (2006)*.
40. **Teaching Compiler Development to Undergraduates Using a Template Based Approach**, Md. Zahurul Islam and M. Khan, *Proc. 8th ICCIT, Gazipur, Bangladesh, (2005)*.
41. **Morphological Analysis of Inflectional Compound Words in Bangl**, Sajib Dasgupta, Naira Khan, and M. Khan, *Proc 8th ICCIT, Gazipur, Bangladesh, (2005)*.
42. **T12: An Advanced Text Input System With Phonetic Support For Mobile Devices**, N. UzZaman and M. Khan, *Proc. IEE Mobility Conference 2005, Guangzhou, China, November, (2005)*.
43. **A Double Metaphone Encoding for Bangla and its Application to Spelling Checker**, N. UzZaman and M. Khan, *Proc. IEEE NLP-KE 2005, Wuhan, China, October, (2005)*.
44. **Local Language Computing in Bangladesh: Status and Challenges**, M. Khan, *2nd International Joint Conference on Natural Language Processing (IJCNLP-05), Jeju Island, Korea, October, (2005)*.

45. **A Double Metaphone Encoding for Approximate Name Searching and Matching in Bangla**, N. UzZaman and M. Khan, *Proc. 4th Intl LASTED Conf on Computational Intelligence, Calgary, Canada, July, (2005)*.
46. **Parsing Bangla with LFG: An Introduction**, M. N. Haque and M. Khan, *BRAC University Journal, Vol 2, No. 1, (2005)*. [Peer reviewed]
47. **Morphological Parsing of Bangla Words using PC-KIMMO**, S. Dasgupta and M. Khan, *Proc. 7th ICCIT, Dhaka, Bangladesh, (2004)*.
48. **Feature Unification for Morphological Parsing in Bangla**, S. Dasgupta and M. Khan, *Proc. 7th ICCIT, Dhaka, Bangladesh, (2004)*.
49. **A Bangla Phonetic Encoding for Better Spelling Suggestions**, N. UzZaman and M. Khan, *Proc. 7th ICCIT, Dhaka, Bangladesh, (2004)*.
50. **Modeling Clear Phase-Mask Materials for Sub-50 nm X-Ray Application**, D. Malueg, M. Khan, F. Cerrina, and J. W. Taylor, *Jpn. J. Appl. Phys., 43(6B), (2004)*. [Peer reviewed]
51. **Modeling for sub-50-nm x-ray application with phase masks**, J. W. Taylor, D. H. Malueg, F. Cerrina, M. Khan and D. Thielman, *Proc. SPIE, 5374, 311 (2004)*.
52. **Focusing X-Ray Microlenses**, M. Khan, D. Amy, M. Feldman, Q. Leonard, F. Cerrina, J. Murakowski and D. Prather, *J. Vac. Sci. Technol., in press (2003)*. [Peer reviewed]
53. **Stochastic modeling of high energy lithographies**, G. Han, M. Khan and F. Cerrina, *J. Vac. Sci. Technol., B 21(6), (2003)*. [Peer reviewed]
54. **A comment on a new ray-tracing program RIGTRACE for X-ray optical systems**, L. Alianelli, M. Sanchez del Rio, M. Khan and F. Cerrina, [*J. Synchrotron Rad. (2001), 8, 1047-1050*], *J. Synchrotron Rad., 10, 191 (2003)*. [Peer reviewed]
55. **A Comprehensive Model of Electron Energy Deposition**, G. Han, M. Khan, Y. Fang, and F. Cerrina, *J. Vac. Sci. Technol., B 20, (2002)*. [Peer reviewed]
56. **Can PXL print 35 nm? Yes.**, M. Khan, G. Han, G. Tsvid, T. Kitayama, J. Maldonado, and F. Cerrina, *J. Vac. Sci. Technol., B 19(6), (2001)*. [Peer reviewed]
57. **Technique for 25 nm X-ray Nanolithography**, E. Toyota, T. Hori, M. Khan and F. Cerrina, *J. Vac. Sci. Technol., B 19(6), (2001)*. [Peer reviewed]
58. **Focusing x-ray masks for printing very narrow features**, M. Feldman, M. Khan and F. Cerrina, *J. Vac. Sci. Technol., B 19(6), (2001)*. [Peer reviewed]
59. **New results in high energy proximity x-ray lithography**, M. Khan, G. Han, J. Maldonado, and F. Cerrina, *Proc. SPIE, 4343, 176 (2001)*.
60. **Processing latitude study on x-ray phase-shifting masks**, L. Yang, M. Khan, J. W. Taylor, Y. Vladimirovsky, and N. Dandekar, *Proc. SPIE, 3997, 530 (2000)*.
61. **Image formation in EUV lithography: multilayer and resist properties**, F. Cerrina, S. Bollepalli, M. Khan, H. Solak, W. Li, and D. He, *Microelectronic Engineering, 53, (2000)*. [Peer reviewed]
62. **Extension of x-ray lithography to 50 nm with a harder spectrum**, M. Khan, G. Han, S. B. Bollepalli, and F. Cerrina, *J. Vac. Sci. Technol., B 17(6), (1999)*. [Peer reviewed]
63. **Pattern resolution of an x-ray beamline with a wide exposure field**, M. Khan, F. Cerrina, and E. Toyota, *J. Vac. Sci. Technol., B 17(6), (1999)*. [Peer reviewed]
64. **Image formation in extreme ultraviolet lithography and numerical aperture effects**, S. B. Bollepalli, M. Khan, and F. Cerrina, *J. Vac. Sci. Technol., B 17(6), (1999)*. [Peer reviewed]
65. **X-ray mask fabrication at CXrL**, Q. J. Leonard, J. Bansel, L. Yang, O. Vladimirovsky, B. S. Bollepalli, M. Khan, Y. Vladimirovsky, F. Cerrina, J. W. Taylor, K. Simon, L. C. Rathbun, and R. C. Tiberio, *Proc. SPIE, 3676, 56 (1999)*.
66. **Imaging properties of the extreme ultraviolet mask**, S.B. Bollepalli, M. Khan, and

- F. Cerrina, *J. Vac. Sci. Technol., B 16, (1998)*. [Peer reviewed]
67. **A Semi-Empirical Resist Dissolution Model For Sub-Micron Lithographies**, M. Khan, S.B. Bollepalli, and F. Cerrina, *Proc. MSM, 1, 41 (1998)*.
 68. **Modeling Image Formation In Layered Structures: Application to X-ray Lithography**, S. B. Bollepalli, M. Khan, and F. Cerrina, *Proc. MSM, 1, 53 (1998)*.
 69. **Parameter Extraction with Neural Networks**, L. Cazzanti, M. Khan, and F. Cerrina, *Proc. SPIE, 3332, 654 (1998)*.
 70. **Modeling Image Formation Using Point Sources**, S. B. Bollepalli, M. Khan, and F. Cerrina, *Proc. SPIE, 3331, 388 (1998)*.
 71. **Investigation of Mask Pattern Proximity Correction to Reduce Image Shortening in X-Ray Lithography**, Scott Hector, Victor Pol, Mumit Khan, Srinivas Bollepalli and Franco Cerrina, *Microelectronic Engineering, 41-42, 271-274, (1998)*. [Peer reviewed]
 72. **The Complete Modeling Of The Image Formation In X-ray Lithography**, S. B. Bollepalli, M. Khan, and F. Cerrina, *Proc. XEL (1998)*.
 73. **Revisiting Phase Shifting Masks in X-ray Lithography**, M. Khan, S. Bollepalli and F. Cerrina, *J. Vac. Sci. Technol., B15(6), Nov/Dec, 2255 (1997)*. [Peer reviewed]
 74. **Automatic Mask Generation in X-ray Lithography**, S. Bollepalli, M. Khan and F. Cerrina, *J. Vac. Sci. Technol., B15(6), Nov/Dec 2238 (1997)*. [Peer reviewed]
 75. **X-ray Lithography for ≤ 100 nm ground rules in complex patterns**, S. D. Hector, M. Khan, et al., *J. Vac. Sci. Technol., B 15(6), Nov/Dec, 2517 (1997)*. [Peer reviewed]
 76. **Topography Description Model for 3D exposure simulation**, M. Khan, S. Bollepalli and F. Cerrina, *Proc. SPIE, 3051, 588 (1997)*.
 77. **Evaluation of aerial image in XRL**, M. Yi, M. Khan, et al., *Proc. SPIE, 3048, 126 (1997)*.
 78. **X-ray phase-mask: Nanostructures**, Z. Chen, Q. Leonard, M. Khan and F. Cerrina, *Proc. SPIE, 3048, 183 (1997)*.
 79. **Simulation of x-ray mask defect printability**, B. S. Bollepalli, S. D. Hector, J. R. Maldonado, J. A. Leavey, F. Cerrina, and M. Khan, *Proc. SPIE, 3048, 155 (1997)*.
 80. **Extendibility of x-ray lithography to ≤ 130 nm ground rules in complex integrated circuit patterns**, S. D. Hector, M. Khan, et al., *J. Vac. Sci. Technol. B 14(6), Nov/Dec (1996)*. [Peer reviewed]
 81. **An Updated Model for X-ray Lithography**, M. Khan, L. Mohammad, L. Ocola, J. Xiao and F. Cerrina, *J. Vac. Sci. Technol. B6(12), Nov/Dec (1994)*. [Peer reviewed]
 82. **Modeling and simulation of a positive chemically amplified photoresist for x-ray lithography**, A.A. Krasnoperova, M. Khan, S. Rhyner, J. W. Taylor, Y.Zhu, F. Cerrina, *J. Vac. Sci. Technol. B6(12), Nov/Dec (1994)*. [Peer reviewed]
 83. **Modeling image formation: application to mask optimization**, J. Xiao, M. Khan, R. Nachman, J. Wallace, and F. Cerrina, *J. Vac. Sci. Technol. B12(6), Nov/Dec (1994)*. [Peer reviewed]
 84. **Spectral Effects on X-ray Lithography**, W. Waldo, A. Krasnoperova, M. Khan, C. Capasso, J. W. Taylor, F. Cerrina, *Proc SPIE, 2194, 129 (1994)*.
 85. **Comparative study of x-ray lithography process optimization using theoretical and empirical tools**, W. Waldo, A. Krasnoperova, M. Khan, C. Capasso, J. W. Taylor, F. Cerrina, *Proc. SPIE, 2194, 83 (1994)*.
 86. **TRANSMIT: A beamline modeling program**, F. Cerrina, F. Baszler, S. Turner, and M. Khan, *Microelectronic Engineering, 21, 103 (1993)*. [Peer reviewed]
 87. **Image formation in x-ray lithography: process optimization**, F. Cerrina, J.Z.Y Guo, S. Turner, L. Ocola, M. Khan, and P. Anderson, *Microelectronic Engineering, 17, 135 (1992)*. [Peer reviewed]
 88. **Recent Developments in SHADOW**, C. Welnak, P. Anderson, M. Khan, S. Singh,

- and F. Cerrina, *Rev. Sci. Instrum.*, *63*, 865-868 (1992). [Peer reviewed]
89. **X-ray dose density: a new radiation damage modeling tool**, F. Baszler, M. Khan, F. Cerrina, *Proc. SPIE*, *1671*, 451 (1992).
 90. **Effects of mirror surface roughness on exposure uniformity in synchrotron x-ray lithography**, G.M. Wells, R. Nachman, C. Welnak, S. Singh, J. Guo, M. Khan, S. Turner, F. Cerrina, Y. Vladimirsky, and J. Maldonado, *J. Vac. Sci. Technol. B* *9*, 3227-331 (1991). [Peer reviewed]
 91. **EXCON: a graphics based experiment control manager**, M. Khan, P. Anderson, and F. Cerrina, *Proc. SPIE*, *1465*, 315 (1991).
 92. **Aerial image formation in synchrotron radiation-based x-ray lithography: the whole picture**, J.Z.Y. Guo, G. Chen, M. Khan, P. Anderson, and F. Cerrina, *J. Vac. Sci. Technol. B* *8*, 1537 (1990). [Peer reviewed]

LANGUAGES

Fluent in English, Bangla.

REFERENCES

Available upon request.

CONTACT INFORMATION

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