

Jeffrey Bokor, Ph.D.

National Semiconductor Distinguished Professor
EECS Department
University of California
Berkeley, CA 94720

Phone: (510)642-4134
jbokor@eecs.berkeley.edu
www.eecs.berkeley.edu/~jbokor

Expertise

- Nanofabrication
- Nanotechnology
- Device Physics
- Nanomagnetism
- Optics
- Semiconductor Physics
- Semiconductor Process
- VLSI Technology

Professional Summary

Education

<u>Year</u>	<u>College/University</u>	<u>Degree</u>
1980	Stanford University	Ph.D., Electrical Engineering
1976	Stanford University	MS, Electrical Engineering
1975	Massachusetts Institute of Technology	BS, Electrical Engineering

Employment History

From: 1993 University of California, Department of Electrical Engineering and Computer Science
To: Present Berkeley, CA
Position: Professor
Joint Appointment: 2004- present, Deputy Director for Science, The Molecular Foundry, Lawrence Berkeley National Laboratory
Joint Appointment: 1993-2004, Group Leader for Advanced Lithography, Center for X-ray Optics, Lawrence Berkeley National Laboratory

Current research interests:

- Nanomagnetism and spintronics
- Carbon electronics
- Solid-state implementation of quantum information processing
- Direct inkjet printing of electronics
- DNA nanotechnology
- Nanophotonics

Classroom teaching:

- Undergraduate and graduate courses in semiconductor physics and technology
- Undergraduate and graduate courses in optical physics and engineering
- Freshman seminar introduction to electrical engineering

Curriculum Vitae - Jeffrey Bokor

- From: 1987 AT&T, Bell Laboratories
To: 1993 Holmdel and Murray Hill, NJ
Position:
1990-93 Ultra-Large Scale Integrated Circuits (ULSI) Technology Research Department. Department Head. Murray Hill, NJ Leader of group of 15 Ph.D. scientists, 35 total technical personnel. Responsible for directing research to create technologies relevant to silicon IC manufacturing in the year 2000. Also responsible for continuing improvement and operation of 20,000 sq. ft. Class 100 research cleanroom facility. Experience included:
- ULSI Process integration
 - Deep sub-micron silicon MOSFET device physics
 - Device and circuit design
 - Advanced process and device modeling software
 - Advanced lithography
- 1987-90 Laser Science Research Department. Department Head, Holmdel, NJ. Leader of group of 10 Ph.D. scientists, 20 total technical personnel. Managed diverse program of basic research in optical physics. Conducted high visibility research program, including:
- X-ray lithography
 - Nonlinear optics
 - Picosecond optoelectronics
 - Femtosecond phenomena in electronic materials
 - Fiber optics
 - Atomic physics
- 1980-87 Quantum Electronics Research Department. Member of Technical Staff, Holmdel, NJ. Independently directed basic research, including:
- Nonlinear optics
 - Picosecond optoelectronics
 - Semiconductor device physics
 - Ultraviolet laser technology

Major Research Accomplishments (1980-Present)

- Demonstration of bandgap and sub-band formation in graphene nanomesh superlattice transistors (2010)
- Self-assembly of gold nanoparticle chain structures for nanophotonics using DNA origami (2010)
- Measurement of Schottky contact junction capacitance, doping profiles and carrier mobility in single semiconductor nanowire and carbon nanotube transistors using ultrasensitive C-V measurements (2009)
- Label-free DNA biosensors using functionalized carbon nanotube transistors (2009)
- Directed assembly of nanophotonic device structure using DNA nanotechnology (2009)
- Theory of spin-dependent scattering in silicon MOSFET transistors (2009)
- Proposed new concepts for nanomagnetic logic technology (2008)

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

- Study of spin-dependent scattering from impurity donors in silicon MOSFETs for use in quantum computing (2007)
- Measurement of spin coherence of antimony donors in silicon near silicon dioxide interfaces (2006)
- First observation of Stark tuning of donor electron spins in silicon, a key step towards implementation of quantum logic in silicon technology (2006)
- First monolithic integrated circuit with both carbon nanotube and silicon MOS transistors (2004)
- Development of a monolithic inkjet printhead array capable of sub-3 μm droplet generation (2004)
- Study of surface and bulk acoustic phonon excitations in superlattices using picosecond ultrasonics (2003)
- Invention and demonstration of “spacer lithography”, a sub-10 nm patterning technology for nano-catalysts and DNA label-free hybridization detection (2003)
- Development of 10 nm gate-length MOSFET devices (2002)
- Demonstration of extreme ultraviolet lensless Fourier transform holography (2001)
- Demonstration of 30 nm lithography using extreme ultraviolet radiation (2001)
- Demonstration of aberration testing and alignment optimization of a commercial prototype four-mirror ring field extreme ultraviolet optical system using at-wavelength interferometry (2000)
- Development of complementary silicide source/drain technology for sub-20 nm MOSFET devices (2000)
- Development of picosecond ultrasonic characterization of Mo/Si extreme ultraviolet multilayer reflectors (1999)
- Development of 17 nm gate-length FinFET devices (1999)
- First demonstration of the “FinFET”, a manufacturable double-gate MOSFET with 25 nm gate-length (1998)
- Development of at-wavelength defect detection metrology for extreme ultraviolet lithography (1998)
- Co-invention and demonstration of the phase-shifting, point diffraction interferometer, and application to high-accuracy wavefront metrology of extreme ultraviolet lithography optics (1996)
- First demonstration of working MOS devices fabricated with extreme ultraviolet lithography (1996)
- Direct, quantitative measurement of saturation velocity and overshoot velocity in MOS inversion layers (1994)
- Demonstration of interferometry at extreme ultraviolet wavelengths for characterization of lithography optics (1994)
- First direct observation of non-thermal energy distributions and thermalization dynamics in laser-excited metal films (1992)
- Development of 89 GHz f T Si MOSFET transistors with 0.15 μm channel length (1992)
- First feasibility demonstration of diffraction-limited extreme ultraviolet projection lithography (1990)
- First direct observation of surface state kinetics during semiconductor surface recombination (1989)

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

- Invention and demonstration of the coplanar vacuum photodiode, an ultrafast, high sensitivity photodetector for the visible and ultraviolet (1987)
- First demonstration of time-resolved photoemission for measurement of picosecond electronic signals in integrated circuits (1986)
- First direct detection of band-gap states at GaAs Schottky barrier interfaces (1986)
- Application of time-resolved photoemission to the first measurement of picosecond electron dynamics on InP, GaAs, and Si surfaces (1985)
- Invention and demonstration of picosecond time-resolved ultraviolet photoemission spectroscopy for the study of electron dynamics at semiconductor surfaces (1985)
- Development of a source of 35.5 nm coherent radiation by seventh harmonic generation in a pulsed jet. At the time, this was the shortest wavelength source of coherent radiation yet demonstrated (1983)
- Invention of the pulsed jet harmonic generator for the production of extreme ultraviolet coherent radiation (1983)
- First picosecond pulse krypton-fluoride excimer laser (1982)
- First demonstration of an autoionization pumped laser (1982)
- First third harmonic generation using an excimer laser (1980)
- Development of the first tunable, single-mode excimer laser system (1980)

Patents

<u>Patent Number</u>	<u>Date Issued</u>	<u>Title</u>
6,559,952	May, 2003	System for interferometric distortion measurements that define an optical path
6,555,828	April, 2003	Method and apparatus for inspecting reflection masks for defects
6,484,306 B1	November, 2002	Multi-Level Scanning Method for Defect Inspection
6,413,802	July, 2002	FINFET Transistor Structures having a Double Gate Channel Extending Vertically From a Substrate and Methods of Manufacture
4,933,542	June, 1990	High Speed Photodetector Having Dual Transmission Line Geometry
4,721,910	January, 1988	High Speed Circuit Measurements Using Photoemission Sampling

Professional Associations and Awards

- Fellow, Optical Society of America
- Fellow, American Physical Society
- Fellow, Institute of Electronics and Electrical Engineers
- Senior Scientist, Lawrence Berkeley National Laboratory
- American Association for the Advancement of Science
- National Semiconductor Distinguished Professorship in Engineering, University of California, 2007-present
- Scientific Advisory Committee, Advanced Light Source, Lawrence Berkeley National Laboratory, 2006-2010
- Scientific Advisory Board, Catalan Institute for Nanoscience (ICN), Autonomous University of Barcelona, 2007-present

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

- IEEE Paul Rappaport Award for best paper of the year published in Electron Device Society journals, 2002
- DARPA Most Significant Technical Accomplishment Award, 2000
- Program Committee, CMOS devices, International Electron Devices Meeting, 1999-2000
- Scientific Advisory Committee, Advanced Light Source, Lawrence Berkeley National Laboratory, 1998-2002
- Technical Advisory Committee, Laser Science and Technology Program, Lawrence Livermore National Laboratory, 1996-1997
- General Co-chair, Quantum Electronics and Laser Science Conference, Baltimore, MD, 1997
- Program Committee, Topical Meeting on Extreme Ultraviolet Lithography, Boston, MA, 1996
- Users Executive Committee, Advanced Light Source, Lawrence Berkeley National Laboratory, 1994-1998
- Program Co-chair, Quantum Electronics and Laser Science Conference, Baltimore, MD, 1995
- Technical Council, Optical Society of America, 1991-1994
- Chairman, Technical Group on X-ray and XUV Physics, Optical Society of America, 1991-1994
- Program Committee, Topical Meeting on Soft X-ray Projection Lithography, Monterey, CA, April, 1992
- Cochairman, Topical Meeting on Soft X-ray Projection Lithography, Monterey, CA, April, 1991
- Cochairman, Topical Meeting on Short Wavelength Coherent Radiation, Generation and Applications, Monterey, CA, March, 1986
- Program Committee, Conference on Lasers and Electro-Optics (CLEO) '84, Anaheim, CA, June, 1984
- Program Committee, Topical Meeting on Laser Techniques in the Extreme Ultraviolet, Boulder, CO, March, 1984
- Program Committee, Topical Meeting on Excimer Lasers, Lake Tahoe, NV, January, 1983
- Program Committee, Topical Meeting on Laser Techniques for Extreme Ultraviolet Spectroscopy, Boulder, CO, March 1982

Curriculum Vitae - Jeffrey Bokor

Publications

1. J. Wu, D. Carlton, E. Oelker, J. S. Park, E. Jin, E. Arenholz, A. Scholl, H. Chanyong, J. Bokor, and Z. Q. Qiu, "Switching a magnetic vortex by interlayer coupling in epitaxially grown Co/Cu/Py/Cu(001) trilayer disks," *J. Phys., Condens. Matter.*, vol. 22, pp. 342001 (4 pp.)-342001 (4 pp.), 1 September 2010.
2. Y. C. Tseng and J. Bokor, "Characterization of the junction capacitance of metal-semiconductor carbon nanotube Schottky contacts," *Applied Physics Letters*, vol. 96, p. 013103, Jan 2010.
3. M. T. Martinez, Y. C. Tseng, J. P. Salvador, M. P. Marco, N. Ormategui, I. Loinaz, and J. Bokor, "Electronic Anabolic Steroid Recognition with Carbon Nanotube Field-Effect Transistors," *Acs Nano*, vol. 4, pp. 1473-1480, Mar 2010.
4. X. Liang, Y.-S. Jung, S. Wu, A. Ismach, D. L. Olynick, S. Cabrini, and J. Bokor, "Formation of Bandgap and Subbands in Graphene Nanomeshes with Sub-10 nm Ribbon Width Fabricated via Nanoimprint Lithography," *Nano Letters*, vol. 10, pp. 2454-2460, 2010.
5. Ismach, C. Druzgalski, S. Penwell, A. Schwartzberg, M. Zheng, A. Javey, J. Bokor, and Y. G. Zhang, "Direct Chemical Vapor Deposition of Graphene on Dielectric Surfaces," *Nano Letters*, vol. 10, pp. 1542-1548, May 2010.
6. Q. Ding, Z. T. Deng, H. Yan, S. Cabrini, R. N. Zuckermann, and J. Bokor, "Gold Nanoparticle Self-Similar Chain Structure Organized by DNA Origami," *Journal of the American Chemical Society*, vol. 132, pp. 3248+, Mar 2010.
7. D. Weis, A. Schuh, A. Batra, A. Persaud, I. W. Rangelow, J. Bokor, C. C. Lo, S. Cabrini, D. Olynick, S. Duhey, and T. Schenkel, "Mapping of ion beam induced current changes in FinFETs," *Nuclear Instruments & Methods in Physics Research, Section B-Beam Interactions with Materials and Atoms*, vol. 267, pp. 1222-1225, 2009.
8. T. Schenkel, C. C. Lo, C. D. Weis, A. Schuh, A. Persaud, and J. Bokor, "Critical issues in the formation of quantum computer test structures by ion implantation," *Nuclear Instruments & Methods in Physics Research Section B-Beam Interactions with Materials and Atoms*, vol. 267, pp. 2563-2566, Aug 2009.
9. M. T. Martinez, Y. C. Tseng, N. Ormategui, I. Loinaz, R. Eritja, and J. Bokor, "Label-Free DNA Biosensors Based on Functionalized Carbon Nanotube Field Effect Transistors," *Nano Letters*, vol. 9, pp. 530-536, Feb 2009.
10. C. Lo, A. Persaud, S. Dhuey, D. Olynick, F. Borondics, M. C. Martin, H. A. Bechtel, J. Bokor, and T. Schenkel, "Device fabrication and transport measurements of FinFETs built with Si-28 SOI wafers toward donor qubits in silicon," *Semiconductor Science and Technology*, vol. 24, p. 105022, Oct 2009.
11. C. Garnett, Y. C. Tseng, D. R. Khanal, J. Q. Wu, J. Bokor, and P. D. Yang, "Dopant profiling and surface analysis of silicon nanowires using capacitance-voltage measurements," *Nat. Nanotechnol.*, vol. 4, pp. 311-314, May 2009.
12. C. Ford, J. C. Ho, Y. L. Chueh, Y. C. Tseng, Z. Y. Fan, J. Guo, J. Bokor, and A. Javey, "Diameter-Dependent Electron Mobility of InAs Nanowires," *Nano Letters*, vol. 9, pp. 360-365, Jan 2009.
13. Ding, S. Cabrini, R. N. Zuckermann, and J. Bokor, "DNA directed assembly of nanoparticle linear structure for nanophotonics," *Journal of Vacuum Science &*

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

- Technology B: Microelectronics and Nanometer Structures*, vol. 27, pp. 184-187, 2009.
14. R. de Sousa, C. C. Lo, and J. Bokor, "Spin-dependent scattering in a silicon transistor," *Physical Review B*, vol. 80, p. 9, Jul 2009.
 15. D. Weis, A. Schuh, A. Batra, A. Persaud, I. W. Rangelow, J. Bokor, C. C. Lo, S. Cabrini, E. Sideras-Haddad, G. D. Fuchs, R. Hanson, D. D. Awschalom, and T. Schenkel, "Single atom doping for quantum device development in diamond and silicon," *J. Vac. Sci. Technol.*, vol. 26, pp. 2596-2600, 2008.
 16. B. Carlton, N. C. Emley, E. Tufeld, and J. Bokor, "Simulation Studies of Nanomagnet-Based Logic Architecture," *Nano Letters*, vol. 8, pp. 4173-4178, Dec 2008.
 17. Y. Wang and J. Bokor, "Ultra-high-resolution monolithic thermal bubble inkjet print head," *Journal of Micro/Nanolithography, MEMS and MOEMS*, vol. 6, pp. 043009-10, 2007.
 18. S. Wang, A. Barman, H. Schmidt, J. D. Maas, A. R. Hawkins, S. Kwon, B. Harteneck, S. Cabrini, and J. Bokor, "Optimization of nano-magneto-optic sensitivity using dual dielectric layer enhancement," *Applied Physics Letters*, vol. 90, Jun 2007.
 19. San Paulo, E. Quevy, J. Black, R. T. Howe, R. White, and J. Bokor, "Mode shape imaging of out-of-plane and in-plane vibrating RF micromechanical resonators by atomic force microscopy," *Microelectronic Engineering*, vol. 84, pp. 1354-1357, May-Aug 2007.
 20. San Paulo, N. Arellano, J. A. Plaza, R. R. He, C. Carraro, R. Maboudian, R. T. Howe, J. Bokor, and P. D. Yang, "Suspended mechanical structures based on elastic silicon nanowire arrays," *Nano Letters*, vol. 7, pp. 1100-1104, Apr 2007.
 21. S. Paulo, J. P. Black, R. M. White, and J. Bokor, "Detection of nanomechanical vibrations by dynamic force microscopy in higher cantilever eigenmodes," *Applied Physics Letters*, vol. 91, Jul 2007.
 22. C. Lo, J. Bokor, T. Schenkel, A. M. Tyryshkin, and S. A. Lyon, "Spin-dependent scattering off neutral antimony donors in Si-28 field-effect transistors," *Applied Physics Letters*, vol. 91, Dec 2007.
 23. Batra, C. D. Weis, J. Reijonen, A. Persaud, T. Schenkel, S. Cabrini, C. C. Lo, and J. Bokor, "Detection of low energy single ion impacts in micron scale transistors at room temperature," *Applied Physics Letters*, vol. 91, p. 193502, 2007.
 24. Barman, S. Wang, J. Maas, A. R. Hawkins, S. Kwon, J. Bokor, A. Liddle, and H. Schmidt, "Size dependent damping in picosecond dynamics of single nanomagnets," *Applied Physics Letters*, vol. 90, pp. 202504-1-3, 2007.
 25. M. Tyryshkin, S. A. Lyon, T. Schenkel, J. Bokor, J. Chu, W. Jantsch, F. Schaffler, J. L. Truitt, S. N. Coppersmith, and M. A. Eriksson, "Electron spin coherence in Si," *Physica E-Low-Dimensional Systems & Nanostructures*, vol. 35, pp. 257-263, Dec 2006.
 26. Y. C. Tseng, K. Phoa, D. Carlton, and J. Bokor, "Effect of diameter variation in a large set of carbon nanotube transistors," *Nano Letters*, vol. 6, pp. 1364-1368, Jul 2006.
 27. T. Schenkel, J. A. Liddle, A. Persaud, A. M. Tyryshkin, S. A. Lyon, R. de Sousa, K. B. Whaley, J. Bokor, J. Shangkuan, and I. Chakarov, "Electrical activation and

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

- electron spin coherence of ultralow dose antimony implants in silicon," *Applied Physics Letters*, vol. 88, Mar 2006.
28. T. Schenkel, J. A. Liddle, J. Bokor, A. Persaud, S. J. Park, J. Shangkuan, C. C. Lo, S. Kwon, S. A. Lyon, A. M. Tyryshkin, I. W. Rangelow, Y. Sarov, D. H. Schneider, J. Ager, and R. de Sousa, "Strategies for integration of donor electron spin qubits in silicon," *Microelectronic Engineering*, vol. 83, pp. 1814-1817, Apr-Sep 2006.
 29. M. Contreras, X. M. Yan, S. Kwon, J. Bokor, and G. A. Somorjai, "Catalytic CO oxidation reaction studies on lithographically fabricated platinum nanowire arrays with different oxide supports," *Catalysis Letters*, vol. 111, pp. 5-13, Oct 2006.
 30. R. Bradbury, A. M. Tyryshkin, G. Sabouret, J. Bokor, T. Schenkel, and S. A. Lyon, "Stark tuning of donor electron spins in silicon," *Physical Review Letters*, vol. 97, Oct 2006.
 31. Barman, S. Q. Wang, J. D. Maas, A. R. Hawkins, S. Kwon, A. Liddle, J. Bokor, and H. Schmidt, "Magneto-optical observation of picosecond dynamics of single nanomagnets," *Nano Letters*, vol. 6, pp. 2939-2944, Dec 2006.
 32. X. M. Yan, S. Kwon, A. M. Contreras, M. M. Koebel, J. Bokor, and G. A. Somorjai, "Fabrication of dense arrays of platinum nanowires on silica, alumina, zirconia and ceria surfaces as 2-D model catalysts," *Catalysis Letters*, vol. 105, pp. 127-132, Dec 2005.
 33. X. M. Yan, S. Kwon, A. M. Contreras, J. Bokor, and G. A. Somorjai, "Fabrication of large number density platinum nanowire arrays by size reduction lithography and nanoimprint lithography," *Nano Letters*, vol. 5, pp. 745-748, Apr 2005.
 34. S. Y. Xiong, T. J. King, and J. Bokor, "Study of the extrinsic parasitics in nano-scale transistors," *Semiconductor Science and Technology*, vol. 20, pp. 652-657, Jun 2005.
 35. S. Y. Xiong, T. J. King, and J. Bokor, "A comparison study of symmetric ultrathin-body double-gate devices with metal source/drain and doped source/drain," *Ieee Transactions on Electron Devices*, vol. 52, pp. 1859-1867, Aug 2005.
 36. S. Y. Xiong and J. Bokor, "Structural optimization of SUTBDG devices for low-power applications," *Ieee Transactions on Electron Devices*, vol. 52, pp. 360-366, Mar 2005.
 37. M. D. Shumway, P. Naulleau, K. A. Goldberg, and J. R. Bokor, "Measuring line roughness through aerial image contrast variation using coherent extreme ultraviolet spatial filtering technique," *Journal of Vacuum Science & Technology B*, vol. 23, pp. 2844-2847, Nov-Dec 2005.
 38. San Paulo, J. Bokor, R. T. Howe, R. He, P. Yang, D. Gao, C. Carraro, and R. Maboudian, "Mechanical elasticity of single and double clamped silicon nanobeams fabricated by the vapor-liquid-solid method," *Applied Physics Letters*, vol. 87, Aug 2005.
 39. San Paulo and J. Bokor, "Scanning acoustic force microscopy characterization of thermal expansion effects on the electromechanical properties of film bulk acoustic resonators," *Applied Physics Letters*, vol. 86, Feb 2005.
 40. N. Qureshi, S. Q. Wang, M. A. Lowther, A. R. Hawkins, S. Kwon, A. Liddle, J. Bokor, and H. Schmidt, "Cavity-enhanced magneto-optical observation of magnetization reversal in individual single-domain nanomagnets," *Nano Letters*, vol. 5, pp. 1413-1417, Jul 2005.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

41. Persaud, S. J. Park, J. A. Liddle, T. Schenkel, J. Bokor, and I. W. Rangelow, "Integration of scanning probes and ion beams," *Nano Letters*, vol. 5, pp. 1087-1091, Jun 2005.
42. Persaud, J. A. Liddle, T. Schenkel, J. Bokor, T. Ivanov, and I. W. Rangelow, "Ion implantation with scanning probe alignment," *Journal of Vacuum Science & Technology B*, vol. 23, pp. 2798-2800, Nov-Dec 2005.
43. X. Liu, A. San Paulo, M. Park, and J. Bokor, "Characterization of acoustic vibration modes at GHz frequencies in bulk acoustic wave resonators by combination of scanning laser interferometry and scanning acoustic force microscopy," *MEMS 2005 Technical Digest*, pp. 175-8., 2005.
44. J. Lin, P. Xuan, and J. Bokor, "Characterization of chemical vapor deposition growth yields of carbon nanotube transistors," *Japanese Journal of Applied Physics Part 1-Regular Papers Brief Communications & Review Papers*, vol. 44, pp. 6859-6861, Sep 2005.
45. S. Kwon, X. M. Yan, A. M. Contreras, J. A. Liddle, G. A. Somorjai, and J. Bokor, "Fabrication of metallic nanodots in large-area arrays by mold-to-mold cross imprinting (MTMCI)," *Nano Letters*, vol. 5, pp. 2557-2562, Dec 2005.
46. Yagishita, T. J. King, and J. Bokor, "Schottky barrier height reduction and drive current improvement in metal source/drain MOSFET with strained-Si channel," *Japanese Journal of Applied Physics Part 1-Regular Papers Short Notes & Review Papers*, vol. 43, pp. 1713-1716, Apr 2004.
47. S. Y. Xiong, J. Bokor, Q. Xiang, P. Fisher, I. Dudley, P. Rao, H. H. Wang, and B. En, "Is gate line edge roughness a first-order issue in affecting the performance of deep sub-micro bulk MOSFET devices?," *Ieee Transactions on Semiconductor Manufacturing*, vol. 17, pp. 357-361, Aug 2004.
48. S. Y. Xiong and J. Bokor, "A simulation study of gate line edge roughness. Effects on doping profiles of short-channel MOSFET devices," *Ieee Transactions on Electron Devices*, vol. 51, pp. 228-232, Feb 2004.
49. Wang, J. Bokor, and A. Lee, "Maskless lithography using drop-on-demand inkjet printing method," *SPIE-Int. Soc. Opt. Eng. Proceedings of the SPIE*, vol. 5374, pp. 628-36, 2004.
50. C. Tseng, P. Q. Xuan, A. Javey, R. Malloy, Q. Wang, J. Bokor, and H. J. Dai, "Monolithic integration of carbon nanotube devices with silicon MOS technology," *Nano Letters*, vol. 4, pp. 123-127, Jan 2004.
51. M. D. Shumway, E. L. Snow, K. A. Goldberg, P. Naulleau, H. Cao, M. Chandhok, J. A. Liddle, E. H. Anderson, and J. Bokor, "EUV resist imaging below 50 nm using coherent spatial filtering techniques," *Proceedings of the SPIE*, vol. 5374, pp. 454-9, 2004.
52. T. Schenkel, I. W. Rangelow, R. Keller, S. J. Park, J. Nilsson, A. Persaud, V. R. Radmilovic, P. Grabienc, D. H. Schneider, J. A. Liddle, and J. Bokor, "Open questions in electronic sputtering of solids by slow highly charged ions with respect to applications in single ion implantation," *Nuclear Instruments & Methods in Physics Research Section B-Beam Interactions with Materials and Atoms*, vol. 219-20, pp. 200-205, Jun 2004.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

53. N. W. Pu, E. Y. Pan, and J. Bokor, "Sensitive detection of laser damage to Mo/Si multilayers by picosecond ultrasonics," *Applied Physics B-Lasers and Optics*, vol. 79, pp. 107-112, Jul 2004.
54. Persaud, F. I. Allen, F. Giccluel, S. J. Park, J. A. Liddle, T. Schenkel, T. Ivanov, K. Ivanova, I. W. Rangelow, and J. Bokor, "Single ion implantation with scanning probe alignment," *Journal of Vacuum Science & Technology B*, vol. 22, pp. 2992-2994, Nov-Dec 2004.
55. S. Paulo, X. Liu, and J. Bokor, "Atomic Force Microscopy characterization of electromechanical properties of RF acoustic bulk wave resonators," *MEMS 2004 Technical Digest*, pp. 169-72, 2004.
56. S. J. Park, A. Persaud, J. A. Liddle, J. Nilsson, J. Bokor, D. H. Schneider, I. W. Rangelow, and T. Schenkel, "Processing issues in top-down approaches to quantum computer development in silicon," *Microelectronic Engineering*, vol. 73-74, pp. 695-700, Jun 2004.
57. S. J. Park, J. A. Liddle, A. Persaud, F. I. Allen, T. Schenkel, and J. Bokor, "Formation of 15 nm scale Coulomb blockade structures in silicon by electron beam lithography with a bilayer resist process," *Journal of Vacuum Science & Technology B*, vol. 22, pp. 3115-3118, Nov-Dec 2004.
58. H. T. Liu, J. K. O. Sin, P. Q. Xuan, and J. Bokor, "Characterization of the ultrathin vertical channel CMOS technology," *Ieee Transactions on Electron Devices*, vol. 51, pp. 106-112, Jan 2004.
59. Yang-Kyu, J. Grunes, L. Joon Sung, Z. Ji, G. A. Somorjai, L. P. Lee, and J. Bokor, "Sub-lithographic patterning technology for nanowire model catalysts and DNA label-free hybridization detection," *Proceedings of the SPIE - The International Society for Optical Engineering*, vol. 5220, pp. 10-19, 2003.
60. P. Q. Xuan and J. Bokor, "Investigation of NiSi and TiSi as CMOS gate materials," *Ieee Electron Device Letters*, vol. 24, pp. 634-636, Oct 2003.
61. S. Y. Xiong and J. Bokor, "Sensitivity of double-gate and FinFET devices to process variations," *Ieee Transactions on Electron Devices*, vol. 50, pp. 2255-2261, Nov 2003.
62. M. D. Shumway, P. Naulleau, K. A. Goldberg, E. L. Snow, and J. Bokor, "Resist evaluation at 50 nm in the EUV using interferometric spatial-frequency-doubled imaging," *Proceedings of the SPIE*, vol. 5037, pp. 910-16, 2003.
63. T. Schenkel, A. Persaud, S. J. Park, J. Nilsson, J. Bokor, J. A. Liddle, R. Keller, D. H. Schneider, D. W. Cheng, and D. E. Humphries, "Solid state quantum computer development in silicon with single ion implantation," *Journal of Applied Physics*, vol. 94, pp. 7017-7024, Dec 2003.
64. N. W. Pu and J. Bokor, "Study of surface and bulk acoustic phonon excitations in superlattices using picosecond ultrasonics," *Physical Review Letters*, vol. 91, Aug 2003.
65. P. P. Naulleau, K. A. Goldberg, P. Batson, J. Bokor, P. Denham, and S. Rekawa, "Fourier-synthesis custom-coherence illuminator for extreme ultraviolet microfield lithography," *Applied Optics*, vol. 42, pp. 820-826, Feb 2003.
66. P. P. Naulleau, K. A. Goldberg, E. H. Anderson, J. Bokor, B. D. Harteneck, K. H. Jackson, D. L. Olynick, F. Salmassi, S. L. Baker, P. B. Mirkarimi, E. A. Spiller, C. C. Walton, D. J. O'Connell, Y. Pei-Yang, and Z. Guojing, "Static EUV micro-

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

- exposures using the ETS Set-2 optics," *Proceedings of the SPIE*, vol. 5037, pp. 36-46, 2003.
67. P. Naulleau, K. A. Goldberg, E. H. Anderson, J. Bokor, B. Harteneck, K. Jackson, D. Olynick, F. Salmassi, S. Baker, P. Mirkarimi, E. Spiller, C. Walton, D. O'Connell, P. Y. Yan, and G. J. Zhang, "Printing-based performance analysis of the engineering test stand set-2 optic using a synchrotron exposure station with variable sigma," *Journal of Vacuum Science & Technology B*, vol. 21, pp. 2697-2700, Nov-Dec 2003.
 68. P. Naulleau, K. A. Goldberg, E. H. Anderson, J. Bokor, E. Gullikson, B. Harteneck, K. Jackson, D. Olynick, F. Salmassi, S. Baker, P. Mirkarimi, E. Spiller, C. Walton, and G. J. Zhang, "Lithographic characterization of the printability of programmed extreme ultraviolet substrate defects," *Journal of Vacuum Science & Technology B*, vol. 21, pp. 1286-1290, Jul-Aug 2003.
 69. J. S. Lee, D. W. Ha, Y. K. Choi, T. J. King, and J. Bokor, "Low-frequency noise characteristics of ultrathin body p-MOSFETs with molybdenum gate," *Ieee Electron Device Letters*, vol. 24, pp. 31-33, Jan 2003.
 70. J. S. Lee, Y. K. Choi, D. W. Ha, S. Balasubramanian, T. J. King, and J. Bokor, "Hydrogen annealing effect on DC and low-frequency noise characteristics in CMOS FinFETs," *Ieee Electron Device Letters*, vol. 24, pp. 186-188, Mar 2003.
 71. K. A. Goldberg, P. P. Naulleau, P. Denham, S. B. Rekawa, K. H. Jackson, E. H. Anderson, J. A. Liddle, and J. Bokor, "EUV interferometry of the 0.3-NA MET optic," *Proceedings of the SPIE*, vol. 5037, pp. 69-74, 2003.
 72. Y. K. Choi, J. Zhu, J. Grunes, J. Bokor, and G. A. Somorjai, "Fabrication of sub-10-nm silicon nanowire arrays by size reduction lithography," *Journal of Physical Chemistry B*, vol. 107, pp. 3340-3343, Apr 2003.
 73. Y. K. Choi, J. S. Lee, J. Zhu, G. A. Somorjai, L. P. Lee, and J. Bokor, "Sublithographic nanofabrication technology for nanocatalysts and DNA chips," *Journal of Vacuum Science & Technology B*, vol. 21, pp. 2951-2955, Nov-Dec 2003.
 74. Y. K. Choi, D. Ha, T. J. King, and J. Bokor, "Investigation of gate-induced drain leakage (GIDL) current in thin body devices: Single-gate ultra-thin body, symmetrical double-gate, and asymmetrical double-gate MOSFETs," *Japanese Journal of Applied Physics Part 1-Regular Papers Short Notes & Review Papers*, vol. 42, pp. 2073-2076, Apr 2003.
 75. L. L. Chang, Y. K. Choi, J. Kedzierski, N. Lindert, P. Q. Xuan, J. Bokor, C. M. Hu, and T. J. King, "Moore's law lives on - Ultra-thin body SOI and FinFET CMOS transistors look to continue Moore's law for many years to come," *Ieee Circuits & Devices*, vol. 19, pp. 35-42, Jan 2003.
 76. L. L. Chang, Y. K. Choi, D. W. Ha, P. Ranade, S. Y. Xiong, J. Bokor, C. M. Hu, and T. J. King, "Extremely scaled silicon nano-CMOS devices," *Proceedings of the Ieee*, vol. 91, pp. 1860-1873, Nov 2003.
 77. M. Yi, T. Haga, C. Walton, C. Larson, and J. Bokor, "'Actinic-only' defects in extreme ultraviolet lithography mask blanks - Native defects at the detection limit of visible-light inspection tools," *Japanese Journal of Applied Physics Part 1-Regular Papers Short Notes & Review Papers*, vol. 41, pp. 4101-4104, Jun 2002.

Curriculum Vitae - Jeffrey Bokor

78. Y. C. Yeo, V. Subramanian, J. Kedzierski, P. Q. Xuan, T. J. King, J. Bokor, and C. M. Hu, "Design and fabrication of 50-nm thin-body p-MOSFETs with a SiGe heterostructure channel," *Ieee Transactions on Electron Devices*, vol. 49, pp. 279-286, Feb 2002.
79. X. Shiying, J. Bokor, X. Qi, P. Fisher, I. M. Dudley, and P. Rao, "Gate line edge roughness effects in 50 nm bulk MOSFET devices," *Proceedings of the SPIE*, vol. 4689, pp. 733-41, 2002.
80. T. Schenkel, A. Persaud, S. J. Park, J. Meijer, J. R. Kingsley, J. W. McDonald, J. P. Holder, J. Bokor, and D. H. Schneider, "Single ion implantation for solid state quantum computer development," *Journal of Vacuum Science & Technology B*, vol. 20, pp. 2819-2823, Nov-Dec 2002.
81. M. Park, M. Yi, P. Mirkarimi, C. Larson, and J. Bokor, "Characterization of extreme ultraviolet lithography mask defects by actinic inspection with broadband extreme ultraviolet illumination," *Journal of Vacuum Science & Technology B*, vol. 20, pp. 3000-3005, Nov-Dec 2002.
82. P. P. Naulleau, K. A. Goldberg, E. H. Anderson, D. T. Attwood, P. J. Batson, J. Bokor, P. Denham, E. M. Gullikson, B. D. Harteneck, B. Hoef, K. H. Jackson, D. L. Olynick, S. Rekawa, F. Salmassi, K. L. Blaedel, H. N. Chapman, L. C. Hale, R. Soufli, E. A. Spiller, D. W. Sweeney, J. R. Taylor, C. C. Walton, A. Ray-Chaudhuri, D. O'Connell, R. Stulen, D. Tichenor, C. W. Gwyn, Y. Pei-Yang, and Z. Guojing, "Static microfield printing at the Advanced Light Source with the ETS Set-2 optic," *Proceedings of the SPIE*, vol. 4688, pp. 64-71, 2002.
83. P. Naulleau, K. A. Goldberg, E. H. Anderson, D. Attwood, P. Batson, J. Bokor, P. Denham, E. Gullikson, B. Harteneck, B. Hoef, K. Jackson, D. Olynick, S. Rekawa, F. Salmassi, K. Blaedel, H. Chapman, L. Hale, P. Mirkarimi, R. Soufli, E. Spiller, D. Sweeney, J. Taylor, C. Walton, D. O'Connell, D. Tichenor, C. W. Gwyn, P. Y. Yan, and G. J. Zhang, "Sub-70 nm extreme ultraviolet lithography at the Advanced Light Source static microfield exposure station using the engineering test stand set-2 optic," *Journal of Vacuum Science & Technology B*, vol. 20, pp. 2829-2833, Nov-Dec 2002.
84. Y. Moonsuk, P. Mincheol, P. B. Mirkarimi, C. C. Larson, and J. Bokor, "At-wavelength inspection of defect smoothing in EUVL masks," *Proceedings of the SPIE*, vol. 4688, pp. 395-400, 2002.
85. J. S. Lee, Y. K. Choi, D. Ha, T. J. King, and J. Bokor, "Low-frequency noise characteristics in p-channel FinFETs," *Ieee Electron Device Letters*, vol. 23, pp. 722-724, Dec 2002.
86. K. A. Goldberg, P. Naulleau, J. Bokor, H. N. Chapman, and A. Barty, "Testing extreme ultraviolet optics with visible-light and extreme ultraviolet interferometry," *Journal of Vacuum Science & Technology B*, vol. 20, pp. 2834-2839, Nov-Dec 2002.
87. K. A. Goldberg, P. Naulleau, J. Bokor, and H. N. Chapman, "Honing the accuracy of extreme-ultraviolet optical system testing: at-wavelength and visible-light measurements of the ETS Set-2 projection optic," *Proceedings of the SPIE*, vol. 4688, pp. 329-37, 2002.
88. K. A. Goldberg, P. Naulleau, and J. Bokor, "Fourier transform interferometer alignment method," *Applied Optics*, vol. 41, pp. 4477-4483, Aug 2002.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

89. M. S. Yi, T. Haga, C. Walton, and J. Bokor, "High sensitivity actinic detection of native defects on extreme ultraviolet lithography mask blanks," *Journal of Vacuum Science & Technology B*, vol. 19, pp. 2401-2405, Nov-Dec 2001.
90. M. D. Shumway, L. Sang Hun, C. Chang Hyun, P. Naulleau, K. A. Goldberg, and J. Bokor, "Extremely fine-pitch printing with a 10 \times Schwarzschild optic at extreme ultraviolet wavelengths," *Proceedings of the SPIE*, vol. 4343, pp. 357-62, 2001.
91. P. P. Naulleau, E. H. Anderson, E. M. Gullikson, and J. Bokor, "Fabrication of high-efficiency multilayer-coated binary blazed gratings in the EUV regime," *Optics Communications*, vol. 200, pp. 27-34, Dec 2001.
92. P. Naulleau, K. A. Goldberg, E. H. Anderson, P. Batson, P. E. Denham, K. H. Jackson, E. M. Gullikson, S. Rekawa, and J. Bokor, "At-wavelength characterization of the extreme ultraviolet Engineering Test Stand Set-2 optic," *Journal of Vacuum Science & Technology B*, vol. 19, pp. 2396-2400, Nov-Dec 2001.
93. N. Lindert, L. L. Chang, Y. K. Choi, E. H. Anderson, W. C. Lee, T. J. King, J. Bokor, and C. M. Hu, "Sub-60-nm quasi-planar FinFETs fabricated using a simplified process," *Ieee Electron Device Letters*, vol. 22, pp. 487-489, Oct 2001.
94. S. H. Lee, P. Naulleau, K. A. Goldberg, C. H. Cho, S. Jeong, and J. Bokor, "Extreme-ultraviolet lensless Fourier-transform holography," *Applied Optics*, vol. 40, pp. 2655-2661, Jun 2001.
95. X. J. Huang, W. C. Lee, C. Kuo, D. Hisamoto, L. L. Chang, J. Kedzierski, E. Anderson, H. Takeuchi, Y. K. Choi, K. Asano, V. Subramanian, T. J. King, J. Bokor, and C. M. Hu, "Sub-50 nm p-channel FinFET," *Ieee Transactions on Electron Devices*, vol. 48, pp. 880-886, May 2001.
96. K. A. Goldberg and J. Bokor, "Fourier-transform method of phase-shift determination," *Applied Optics*, vol. 40, pp. 2886-2894, Jun 2001.
97. H. N. Chapman, A. K. Ray-Chaudhuri, D. A. Tichenor, W. C. Replogle, R. H. Stulen, G. D. Kubiak, P. D. Rockett, L. E. Klebanoff, D. O'Connell, A. H. Leung, K. L. Jefferson, J. B. Wronosky, J. S. Taylor, L. C. Hale, K. Blaedel, E. A. Spiller, G. E. Sommargren, J. A. Folta, D. W. Sweeney, E. M. Gullikson, P. Naulleau, K. A. Goldberg, J. Bokor, D. T. Attwood, U. Mickan, R. Hanzen, E. Panning, P. Y. Yan, C. W. Gwyn, and S. H. Lee, "First lithographic results from the extreme ultraviolet Engineering Test Stand," *Journal of Vacuum Science & Technology B*, vol. 19, pp. 2389-2395, Nov-Dec 2001.
98. M. Yi, S. Jeong, S. Rekawa, and J. Bokor, "Characterization of extreme ultraviolet lithography mask defects from extreme ultraviolet far-field scattering patterns," *Journal of Vacuum Science & Technology B*, vol. 18, pp. 2930-2934, Nov-Dec 2000.
99. Y. C. Yeo, V. Subramanian, J. Kedzierski, T. J. King, J. Bokor, C. M. Hu, and P. Q. Xuan, "Nanoscale ultra-thin-body silicon-on-insulator P-MOSFET with a SiGe/Si heterostructure channel," *Ieee Electron Device Letters*, vol. 21, pp. 161-163, Apr 2000.
100. J. Seongtae, L. Chih-Wei, S. Rekawa, C. C. Walton, and J. Bokor, "Actinic defect counting statistics over 1 cm² area of EUVL mask blank," *Proceedings of the SPIE*, vol. 3997, pp. 431-40, 2000.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

101. L. Sang Hun, F. Piao, P. Naulleau, K. A. Goldberg, W. Oldham, and J. Bokor, "At-wavelength characterization of DUV-radiation-induced damage in fused silica," *Proceedings of the SPIE*, vol. 3998, pp. 724-31, 2000.
102. L. Sang Hun, P. Naulleau, K. A. Goldberg, C. Chang Hyun, and J. Bokor, "EUV holographic aerial image recording," *Proceedings of the SPIE*, vol. 3997, pp. 823-8., 2000.
103. P. P. Naulleau, C. H. Cho, E. M. Gullikson, and J. Bokor, "Transmission phase gratings for EUV interferometry," *Journal of Synchrotron Radiation*, vol. 7, pp. 405-410, Nov 2000.
104. P. Naulleau, K. A. Goldberg, E. M. Gullikson, and J. Bokor, "At-wavelength, system-level flare characterization of extreme-ultraviolet optical systems," *Applied Optics*, vol. 39, pp. 2941-2947, Jun 2000.
105. P. P. Naulieau, K. A. Goldberg, and J. Bokor, "Extreme ultraviolet carrier-frequency shearing interferometry of a lithographic four-mirror optical system," *Journal of Vacuum Science & Technology B*, vol. 18, pp. 2939-2943, Nov-Dec 2000.
106. S. H. Lee, J. Bokor, P. Naulleau, S. T. Jeong, and K. A. Goldberg, "Extreme ultraviolet holographic microscopy and its application to extreme ultraviolet mask-blank defect characterization," *Journal of Vacuum Science & Technology B*, vol. 18, pp. 2935-2938, Nov-Dec 2000.
107. J. Kedzierski, P. Q. Xuan, V. Subramanian, J. Bokor, T. J. King, C. M. Hu, and E. Anderson, "A 20 nm gate-length ultra-thin body p-MOSFET with silicide source/drain," *Superlattices and Microstructures*, vol. 28, pp. 445-452, Nov-Dec 2000.
108. J. Kedzierski, X. Peiqi, V. Subramanian, J. Bokor, K. Tsu-Jae, H. Chenming, and E. Anderson, "A 20 nm gate-length ultra-thin body p-MOSFET with silicide source/drain," *Superlattices and Microstructures*, vol. 28, pp. 445-52, 2000.
109. J. Kedzierski, E. Anderson, and J. Bokor, "Calixarene G-line double resist process with 15 nm resolution aid large area exposure capability," *Journal of Vacuum Science & Technology B*, vol. 18, pp. 3428-3430, Nov-Dec 2000.
110. Hisamoto, W. C. Lee, J. Kedzierski, H. Takeuchi, K. Asano, C. Kuo, E. Anderson, T. J. King, J. Bokor, and C. M. Hu, "FinFET - A self-aligned double-gate MOSFET scalable to 20 nm," *Ieee Transactions on Electron Devices*, vol. 47, pp. 2320-2325, Dec 2000.
111. K. A. Goldberg, P. Naulleau, P. Batson, P. Denham, E. H. Anderson, H. Chapman, and J. Bokor, "Extreme ultraviolet alignment and testing of a four-mirror ring field extreme ultraviolet optical system," *Journal of Vacuum Science & Technology B*, vol. 18, pp. 2911-2915, Nov-Dec 2000.
112. K. A. Golberg, P. Naulleau, P. J. Batson, P. Denham, E. H. Anderson, J. Bokor, and H. N. Chapman, "EUV interferometry of a four-mirror ring field," *Proceedings of the SPIE*, vol. 3997, pp. 867-73, 2000.
113. Y. K. Choi, K. Asano, N. Lindert, V. Subramanian, T. J. King, J. Bokor, and C. M. Hu, "Ultrathin-body SOI MOSFET for deep-sub-tenth micron era," *Ieee Electron Device Letters*, vol. 21, pp. 254-255, May 2000.
114. N. W. Pu, J. Bokor, S. T. Jeong, and R. A. Zhao, "Nondestructive picosecond-ultrasonic characterization of Mo/Si extreme ultraviolet multilayer reflection

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

- coatings," *Journal of Vacuum Science & Technology B*, vol. 17, pp. 3014-3018, Nov-Dec 1999.
115. N. W. Pu, J. Bokor, S. Jeong, and R. A. Zhao, "Picosecond ultrasonic study of Mo/Si multilayer structures using an alternating-pump technique," *Applied Physics Letters*, vol. 74, pp. 320-322, Jan 1999.
 116. P. Nen-Wen, J. Seongtae, Z. Ri-An, and J. Bokor, "Picosecond ultrasonic characterization of Mo/Si multilayers for extreme ultraviolet lithography," *Proceedings of the SPIE*, vol. 3676, pp. 627-34, 1999.
 117. P. Nen-Wen, J. Seongtae, Z. Ri-An, and J. Bokor, "Nondestructive picosecond ultrasonic characterization of Mo/Si multilayers using a novel pump-probe scheme," *Proceedings of the SPIE*, vol. 3749, pp. 196-7, 1999.
 118. P. P. Naulleau, K. A. Goldberg, S. H. Lee, C. Chang, D. Attwood, and J. Bokor, "Extreme-ultraviolet phase-shifting point-diffraction interferometer: a wave-front metrology tool with subangstrom reference-wave accuracy," *Applied Optics*, vol. 38, pp. 7252-7263, Dec 1999.
 119. P. Naulleau, K. A. Goldberg, S. H. Lee, C. Chang, P. Batson, D. Attwood, and J. Bokor, "Recent advances in EUV phase-shifting point diffraction interferometry," *Proceedings of the SPIE*, vol. 3767, pp. 154-63, 1999.
 120. P. Naulleau, K. A. Goldberg, E. M. Gullikson, and J. Bokor, "Interferometric at-wavelength flare characterization of extreme ultraviolet optical systems," *Journal of Vacuum Science & Technology B*, vol. 17, pp. 2987-2991, Nov-Dec 1999.
 121. J. Kedzierski, J. Bokor, and E. Anderson, "Novel method for silicon quantum wire transistor fabrication," *Journal of Vacuum Science & Technology B*, vol. 17, pp. 3244-3247, Nov-Dec 1999.
 122. S. T. Jeong, L. Johnson, S. Rekawa, C. C. Walton, S. T. Prisbrey, E. Tejnil, J. H. Underwood, and J. Bokor, "Actinic detection of sub-100 nm defects on extreme ultraviolet lithography mask blanks," *Journal of Vacuum Science & Technology B*, vol. 17, pp. 3009-3013, Nov-Dec 1999.
 123. S. Jeong, C. W. Lai, S. Rekawa, C. C. Walton, S. T. Prisbrey, and J. Bokor, "Cross correlation between actinic and visible defect inspection tool for extreme ultraviolet lithography," *Proceedings of the SPIE*, vol. 3873, pp. 814-21, 1999.
 124. S. Jeong, L. Johnson, L. Yun, S. Rekawa, Y. Pei-Yang, P. A. Kearney, E. Tejnil, J. H. Underwood, and J. Bokor, "Actinic EUVL mask blank defect inspection system," *Proceedings of the SPIE*, vol. 3676, pp. 298-308, 1999.
 125. S. Jeong and J. Bokor, "Ultrafast carrier dynamics near the Si(100)2x1 surface," *Physical Review B*, vol. 59, pp. 4943-4951, Feb 1999.
 126. M. Gullikson, S. Baker, J. E. Bjorkholm, J. Bokor, K. A. Goldberg, J. E. M. Goldsmith, C. Montcalm, P. Naulleau, E. Spiller, D. G. Stearns, J. S. Taylor, and J. H. Underwood, "EUV scattering and flare of 10x projection cameras," *Proceedings of the SPIE*, vol. 3676, pp. 717-23, 1999.
 127. K. A. Goldberg, P. Naulleau, L. SangHun, C. Chang, C. Bresloff, R. Gaughan, H. N. Chapman, J. Goldsmith, and J. Bokor, "Direct comparison of EUV and visible-light interferometries," *Proceedings of the SPIE*, vol. 3676, pp. 635-42, 1999.
 128. K. A. Goldberg, P. Naulleau, and J. Bokor, "Extreme ultraviolet interferometric measurements of diffraction-limited optics," *Journal of Vacuum Science & Technology B*, vol. 17, pp. 2982-2986, Nov-Dec 1999.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

129. M. Bockrath, D. H. Cobden, J. Lu, A. G. Rinzler, R. E. Smalley, L. Balents, and P. L. McEuen, "Luttinger-liquid behaviour in carbon nanotubes," *Nature*, vol. 397, pp. 598-601, 1999.
130. T. Attwood, P. Naulleau, K. A. Goldberg, E. Tejnil, C. Chang, R. Beguiristain, P. Batson, J. Bokor, E. M. Gullikson, M. Koike, H. Medeck, and J. H. Underwood, "Tunable coherent radiation in the soft X-ray and extreme ultraviolet spectral regions," *Ieee Journal of Quantum Electronics*, vol. 35, pp. 709-720, May 1999.
131. Tejnil, K. A. Goldberg, and J. Bokor, "Phase effects owing to multilayer coatings in a two-mirror extreme-ultraviolet Schwarzschild objective," *Applied Optics*, vol. 37, pp. 8021-8029, Dec 1998.
132. J. Seongtae, M. Idir, L. Johnson, L. Yun, P. Batson, R. Levesque, P. Kearney, Y. Pei-Yang, E. Gullikson, J. H. Underwood, and J. Bokor, "Actinic detection of EUVL mask blank defects," *Proceedings of the SPIE*, vol. 3546, pp. 524-30, 1998.
133. S. T. Jeong, M. Idir, Y. Lin, L. Johnson, S. Rekawa, M. Jones, P. Denham, P. Batson, R. Levesque, P. Kearney, P. Y. Yan, E. Gullikson, J. H. Underwood, and J. Bokor, "At-wavelength detection of extreme ultraviolet lithography mask blank defects," *Journal of Vacuum Science & Technology B*, vol. 16, pp. 3430-3434, Nov-Dec 1998.
134. K. A. Goldberg, P. Naulleau, S. Lee, C. Bresloff, C. Henderson, D. Attwood, and J. Bokor, "High-accuracy interferometry of extreme ultraviolet lithographic optical systems," *Journal of Vacuum Science & Technology B*, vol. 16, pp. 3435-3439, Nov-Dec 1998.
135. Budiarto, N. W. Pu, S. Jeong, and J. Bokor, "Near-field propagation of terahertz pulses from a large-aperture antenna," *Optics Letters*, vol. 23, pp. 213-215, Feb 1998.
136. Tejnil, K. A. Goldberg, S. H. Lee, H. Medeck, P. J. Batson, P. E. Denham, A. A. MacDowell, J. Bokor, and D. Attwood, "At-wavelength interferometry for extreme ultraviolet lithography," *Journal of Vacuum Science & Technology B*, vol. 15, pp. 2455-2461, Nov-Dec 1997.
137. Sinitsky, R. Tu, C. L. Liang, M. S. Chan, J. Bokor, and C. M. Hu, "AC output conductance of SOI MOSFET's and impact on analog applications," *Ieee Electron Device Letters*, vol. 18, pp. 36-38, Feb 1997.
138. Sinitsky, F. Assaderaghi, M. Orshansky, J. Bokor, and C. Hu, "Velocity overshoot of electrons and holes in Si inversion layers," *Solid-State Electronics*, vol. 41, pp. 1119-1125, Aug 1997.
139. Sinitsky, F. Assaderaghi, C. M. Hu, and J. Bokor, "High field hole velocity and velocity overshoot in silicon inversion layers," *Ieee Electron Device Letters*, vol. 18, pp. 54-56, Feb 1997.
140. J. Orenstein, J. Bokor, E. Budiarto, J. Corson, R. Mallozzi, I. Bozovic, and J. N. Eckstein, "Nonlinear electrodynamics in cuprate superconductors," *Physica C*, vol. 282, pp. 252-255, Aug 1997.
141. Y. Lin and J. Bokor, "Minimum critical defects in extreme-ultraviolet lithography masks," *Journal of Vacuum Science & Technology B*, vol. 15, pp. 2467-2470, Nov-Dec 1997.

Curriculum Vitae - Jeffrey Bokor

142. J. Kedzierski, J. Bokor, and C. Kisielowski, "Fabrication of planar silicon nanowires on silicon-on-insulator using stress limited oxidation," *Journal of Vacuum Science & Technology B*, vol. 15, pp. 2825-2828, Nov-Dec 1997.
143. K. A. Goldberg, E. Tejnil, L. Sang Hun, H. Medeck, D. T. Attwood, K. H. Jackson, and J. Bokor, "Characterization of an EUV Schwarzschild objective using phase-shifting point diffraction interferometry," *Proceedings of the SPIE*, vol. 3048, pp. 264-70, 1997.
144. Assaderaghi, D. Sinitsky, S. A. Parke, J. Bokor, P. K. Ko, and C. M. Hu, "Dynamic threshold-voltage MOSFET (DTMOS) for ultra-low voltage VLSI," *Ieee Transactions on Electron Devices*, vol. 44, pp. 414-422, Mar 1997.
145. Assaderaghi, D. Sinitsky, J. Bokor, P. K. Ko, H. Gaw, and C. M. Hu, "High-field transport of inversion-layer electrons and holes including velocity overshoot," *Ieee Transactions on Electron Devices*, vol. 44, pp. 664-671, Apr 1997.
146. N. C. Tien, S. Jeong, L. M. Phinney, K. Fushinobu, and J. Bokor, "Surface adhesion reduction in silicon microstructures using femtosecond laser pulses," *Applied Physics Letters*, vol. 68, pp. 197-199, Jan 1996.
147. J. H. Son, S. T. Jeong, and J. Bokor, "Noncontact probing of metal-oxide-semiconductor inversion layer mobility," *Applied Physics Letters*, vol. 69, pp. 1779-1780, Sep 1996.
148. K. B. Nguyen, G. F. Cardinale, D. A. Tichenor, G. D. Kubiak, K. Berger, A. K. RayChaudhuri, Y. Perras, S. J. Haney, R. Nissen, K. Krenz, R. H. Stulen, H. Fujioka, C. Hu, J. Bokor, D. M. Tennant, and L. A. Fetter, "Fabrication of metal-oxide-semiconductor devices with extreme ultraviolet lithography," *Journal of Vacuum Science & Technology B*, vol. 14, pp. 4188-4192, Nov-Dec 1996.
149. Medeck, E. Tejnil, K. A. Goldberg, and J. Bokor, "Phase-shifting point diffraction interferometer," *Optics Letters*, vol. 21, pp. 1526-1528, Oct 1996.
150. S. Jeong, H. Zacharias, and J. Bokor, "Ultrafast carrier dynamics on the Si(100)2x1 surface," *Physical Review B*, vol. 54, pp. 17300-17303, Dec 1996.
151. E. Budiarto, J. Margolies, S. Jeong, J. Son, and J. Bokor, "High-intensity terahertz pulses at 1-kHz repetition rate," *Ieee Journal of Quantum Electronics*, vol. 32, pp. 1839-1846, Oct 1996.
152. Bokor, A. R. Neureuther, and W. G. Oldham, "Advanced lithography for ULSI," *Ieee Circuits and Devices Magazine*, vol. 12, pp. 11-15, Jan 1996.
153. R. Beguiristain, K. A. Goldberg, E. Tejnil, J. Bokor, H. Medeck, D. T. Attwood, and K. Jackson, "Interferometry using undulator sources," *Review of Scientific Instruments*, vol. 67, p. 1, 1996.
154. A. Goldberg, R. Beguiristain, J. Bokor, H. Medeck, K. Jackson, D. T. Attwood, G. E. Sommargren, J. P. Spallas, and R. Hostetler, "At-wavelength testing of optics for EUV," *Proceedings of the SPIE*, vol. 2437, pp. 347-54, 1995.
155. A. Goldberg, R. Beguiristain, J. Bokor, H. Medeck, D. T. Attwood, K. Jackson, E. Tejnil, and G. E. Sommargren, "Progress towards lambda/20 extreme ultraviolet interferometry," *Journal of Vacuum Science & Technology B*, vol. 13, pp. 2923-2927, Nov-Dec 1995.
156. G. Park, C. A. King, D. J. Eaglesham, T. W. Sorsch, B. Weir, H. S. Luftman, J. Bokor, and Y. O. Kim, "Ultrashallow p⁺-n junctions formed by

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

- diffusion from an RTCVD-deposited B:Ge layer," *Proceedings of the SPIE*, vol. 2091, pp. 122-31, 1994.
157. Assaderaghi, S. Parke, D. Sinitsky, J. Bokor, P. K. Ko, and C. M. Hu, "A Dynamic Threshold Voltage Mosfet (Dtmos) for Very-Low Voltage Operation," *Ieee Electron Device Letters*, vol. 15, pp. 510-512, Dec 1994.
 158. A. Tichenor, G. D. Kubiak, M. E. Malinowski, R. H. Stulen, S. J. Haney, K. W. Berger, L. A. Brown, W. C. Sweatt, J. E. Bjorkholm, R. R. Freeman, M. D. Himel, A. A. Macdowell, D. M. Tennant, O. R. Wood, J. Bokor, T. E. Jewell, W. M. Mansfield, W. K. Waskiewicz, D. L. White, and D. L. Windt, "Soft-X-Ray Projection Lithography Experiments Using Schwarzschild Imaging Optics," *Applied Optics*, vol. 32, pp. 7068-7071, Dec 1993.
 159. H. Sher, U. Mohideen, H. W. K. Tom, O. R. Wood, II, G. D. Aumiller, T. J. McIlrath, J. Bokor, R. R. Freeman, and J. Sugar, "Soft X-ray pulse length measurement by pump-probe absorption spectroscopy," *Proceedings of the SPIE*, vol. vol.1860, pp. 112-22, 1993.
 160. M. Murnane, H. C. Kapteyn, S. P. Gordon, J. Bokor, E. N. Glytsis, and R. W. Falcone, "Efficient Coupling of High-Intensity Subpicosecond Laser-Pulses into Solids," *Applied Physics Letters*, vol. 62, pp. 1068-1070, Mar 1993.
 161. U. Mohideen, M. H. Sher, H. W. K. Tom, G. D. Aumiller, O. R. Wood, R. R. Freeman, J. Bokor, and P. H. Bucksbaum, "High-Intensity above-Threshold Ionization of He," *Physical Review Letters*, vol. 71, pp. 509-512, Jul 1993.
 162. A. Macdowell, J. E. Bjorkholm, K. Early, R. R. Freeman, M. D. Himel, P. P. Mulgrew, L. H. Szeto, D. W. Taylor, D. M. Tennant, O. R. Wood, J. Bokor, L. Eichner, T. E. Jewell, W. K. Waskiewicz, D. L. White, D. L. Windt, R. M. Dsouza, W. T. Silfvast, and F. Zernike, "Soft-X-Ray Projection Imaging with a 1/1 Ring-Field Optic," *Applied Optics*, vol. 32, pp. 7072-7078, Dec 1993.
 163. W. S. Fann, R. Storz, H. W. K. Tom, and J. Bokor, "Direct Measurement of Nonequilibrium Electron-Energy Distributions in Subpicosecond Laser-Heated Gold-Films," *Surface Science*, vol. 283, pp. 221-225, Mar 1993.
 164. Attwood, G. Sommargren, R. Beguiristain, K. Nguyen, J. Bokor, N. Ceglio, K. Jackson, M. Koike, and J. Underwood, "Undulator Radiation for at-Wavelength Interferometry of Optics for Extreme-Ultraviolet Lithography," *Applied Optics*, vol. 32, pp. 7022-7031, Dec 1993.
 165. R. H. Yan, K. F. Lee, D. Y. Jeon, Y. O. Kim, B. G. Park, M. R. Pinto, C. S. Rafferty, D. M. Tennant, E. H. Westerwick, G. M. Chin, M. D. Morris, K. Early, P. Mulgrew, W. M. Mansfield, R. K. Watts, A. M. Voshchenkov, J. Bokor, R. G. Swartz, and A. Ourmazd, "89-Ghzft Room-Temperature Silicon Mosfets," *Ieee Electron Device Letters*, vol. 13, pp. 256-258, May 1992.
 166. G. Park, J. Bokor, H. S. Luftman, C. S. Rafferty, and M. R. Pinto, "Ultrashallow Junctions for Ulsi Using as-2+ Implantation and Rapid Thermal Anneal," *Ieee Electron Device Letters*, vol. 13, pp. 507-509, Oct 1992.
 167. U. Mohideen, H. W. K. Tom, R. R. Freeman, J. Bokor, and P. H. Bucksbaum, "Interaction of Free-Electrons with an Intense Focused Laser-Pulse in Gaussian and Conical Axicon Geometries," *Journal of the Optical Society of America B-Optical Physics*, vol. 9, pp. 2190-2195, Dec 1992.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

168. A. Macdowell, J. E. Bjorkholm, J. Bokor, L. Eichner, R. R. Freeman, J. Z. Pastalan, L. H. Szeto, D. M. Tennant, O. R. Wood, T. E. Jewell, W. M. Mansfield, W. K. Waskiewicz, D. L. White, and D. L. Windt, "Reduction Imaging with Soft X-Rays for Projection Lithography," *Review of Scientific Instruments*, vol. 63, pp. 737-740, Jan 1992.
169. W. S. Fann, R. Storz, H. W. K. Tom, and J. Bokor, "Direct Measurement of Nonequilibrium Electron-Energy Distributions in Subpicosecond Laser-Heated Gold-Films," *Physical Review Letters*, vol. 68, pp. 2834-2837, May 1992.
170. W. S. Fann, R. Storz, H. W. K. Tom, and J. Bokor, "Electron Thermalization in Gold," *Physical Review B*, vol. 46, pp. 13592-13595, Nov 1992.
171. L. White, J. E. Bjorkholm, J. Bokor, L. Eichner, R. R. Freeman, T. E. Jewell, W. M. Mansfield, A. A. Macdowell, L. H. Szeto, D. W. Taylor, D. M. Tennant, W. K. Waskiewicz, D. L. Windt, and O. R. Wood, "Soft-X-Ray Projection Lithography," *Solid State Technology*, vol. 34, pp. 37-42, Jul 1991.
172. A. Tichenor, G. D. Kubiak, M. E. Malinowski, R. H. Stulen, S. J. Haney, K. W. Berger, L. A. Brown, R. R. Freeman, W. M. Mansfield, O. R. Wood, D. M. Tennant, J. E. Bjorkholm, A. A. Macdowell, J. Bokor, T. E. Jewell, D. L. White, D. L. Windt, and W. K. Waskiewicz, "Diffraction-Limited Soft-X-Ray Projection Imaging Using a Laser Plasma Source," *Optics Letters*, vol. 16, pp. 1557-1559, Oct 1991.
173. A. Macdowell, J. E. Bjorkholm, J. Bokor, L. Eichner, R. R. Freeman, W. M. Mansfield, J. Pastalan, L. H. Szeto, D. M. Tennant, O. R. Wood, T. E. Jewell, W. K. Waskiewicz, D. L. White, D. L. Windt, W. T. Silfvast, and F. Zernike, "Soft-X-Ray Projection Lithography Using a 1-1 Ring Field Optical-System," *Journal of Vacuum Science & Technology B*, vol. 9, pp. 3193-3197, Nov-Dec 1991.
174. D. Kubiak, D. A. Tichenor, M. E. Malinowski, R. H. Stulen, S. J. Haney, K. W. Berger, L. A. Brown, J. E. Bjorkholm, R. R. Freeman, W. M. Mansfield, D. M. Tennant, O. R. Wood, J. Bokor, T. E. Jewell, D. L. White, D. L. Windt, and W. K. Waskiewicz, "Diffraction-Limited Soft-X-Ray Projection Lithography with a Laser Plasma Source," *Journal of Vacuum Science & Technology B*, vol. 9, pp. 3184-3188, Nov-Dec 1991.
175. W. S. Fann, R. Storz, and J. Bokor, "Observation of above-Threshold Multiphoton Photoelectric-Emission from Image-Potential Surface-States," *Physical Review B*, vol. 44, pp. 10980-10982, Nov 1991.
176. E. Bjorkholm, J. Bokor, L. Eichner, R. R. Freeman, W. M. Mansfield, L. Szeto, D. W. Taylor, D. M. Tennant, O. R. Wood, T. E. Jewell, D. L. White, W. K. Waskiewicz, D. L. Windt, and A. A. MacDowell, "Soft X-ray projection lithography," *Optics & Photonics News*, vol. 2, pp. 27-30, 1991.
177. E. Bjorkholm, J. Bokor, L. Eichner, R. R. Freeman, J. Gregus, T. E. Jewell, W. M. Mansfield, A. A. Macdowell, M. L. Omalley, E. L. Raab, W. T. Silfvast, L. H. Szeto, D. M. Tennant, W. K. Waskiewicz, D. L. White, D. L. Windt, and O. R. Wood, "Experiments in Projection Lithography Using Soft X-Rays," *Microelectronic Engineering*, vol. 13, pp. 243-250, Mar 1991.
178. T. E. Jewell, M. M. Becker, J. E. Bjorkholm, J. Bokor, L. Eichner, R. R. Freeman, W. M. Mansfield, A. A. MacDowell, M. L. O'Malley, E. L. Raab, W. T. Silfvast, L. H. Szeto, D. M. Tennant, W. K. Waskiewicz, D. L. White, D. L. Windt, O. R.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

- Wood, II, and J. H. Bruning, "20:1 projection soft X-ray lithography using tri-level resist," *Proceedings of the SPIE*, vol. vol.1263, pp. 90-8, 1990.
179. E. Bjorkholm, J. Bokor, L. Eichner, R. R. Freeman, J. Gregus, T. E. Jewell, W. M. Mansfield, A. A. Macdowell, E. L. Raab, W. T. Silfvast, L. H. Szeto, D. M. Tennant, W. K. Waskiewicz, D. L. White, D. L. Windt, O. R. Wood, and J. H. Bruning, "Reduction Imaging at 14 Nm Using Multilayer-Coated Optics - Printing of Features Smaller Than 0.1-Mu-M," *Journal of Vacuum Science & Technology B*, vol. 8, pp. 1509-1513, Nov-Dec 1990.
180. J. Halas and J. Bokor, "Surface Recombination on the Si(111)2x1 Surface," *Physical Review Letters*, vol. 62, pp. 1679-1682, Apr 1989.
181. J. Bokor and N. J. Halas, "Time-Resolved Study of Silicon Surface Recombination," *Ieee Journal of Quantum Electronics*, vol. 25, pp. 2550-2555, Dec 1989.
182. J. Bokor, "Ultrafast Dynamics at Semiconductor and Metal-Surfaces," *Science*, vol. 246, pp. 1130-1134, Dec 1989.
183. S. L. Tang, J. Bokor, and R. H. Storz, "Direct Force Measurement in Scanning Tunneling Microscopy," *Applied Physics Letters*, vol. 52, pp. 188-190, Jan 1988.
184. J. Bokor, A. M. Johnson, W. M. Simpson, R. H. Storz, and P. R. Smith, "Coplanar Vacuum Photodiode for Measurement of Short-Wavelength Picosecond Pulses," *Applied Physics Letters*, vol. 53, pp. 2599-2601, Dec 1988.
185. R. Haight, J. Bokor, R. R. Freeman, and P. H. Bucksbaum, "Time and Angle Resolved Ultraviolet Photoemission Spectroscopy Studies of Single-Crystal Surface and Interfaces," *Journal of Vacuum Science & Technology a-Vacuum Surfaces and Films*, vol. 4, pp. 1481-1486, May-Jun 1986.
186. R. Haight and J. Bokor, "Direct Observation of Adsorbate-Induced Band-Gap States on Gaas(110)," *Physical Review Letters*, vol. 56, pp. 2846-2849, Jun 1986.
187. J. Bokor, R. Storz, R. R. Freeman, and P. H. Bucksbaum, "Picosecond Surface Electron Dynamics on Photoexcited Si(111) (2x1) Surfaces," *Physical Review Letters*, vol. 57, pp. 881-884, Aug 1986.
188. J. Bokor, A. M. Johnson, R. H. Storz, and W. M. Simpson, "High-Speed Circuit Measurements Using Photoemission Sampling," *Applied Physics Letters*, vol. 49, pp. 226-228, Jul 1986.
189. J. Bokor, R. R. Freeman, P. H. Bucksbaum, and R. Haight, "Time-Resolved Photoemission from Semiconductor Surfaces and Interfaces," *Journal of the Optical Society of America B-Optical Physics*, vol. 3, pp. P58-P58, Aug 1986.
190. Attwood and J. Bokor, "Coherent Shortwave Sources and Optics Advance toward Exciting Applications," *Laser Focus-Electro-Optics*, vol. 22, pp. 22-&, Jul 1986.
191. R. Haight, J. Bokor, J. Stark, R. H. Storz, R. R. Freeman, and P. H. Bucksbaum, "Picosecond Time-Resolved Photoemission-Study of the Inp(110) Surface," *Physical Review Letters*, vol. 54, pp. 1302-1305, 1985.
192. W. E. Cooke, L. A. Bloomfield, R. R. Freeman, and J. Bokor, "Planetary Atoms," *Lecture Notes in Physics*, vol. 229, pp. 187-198, 1985.
193. J. Bokor, R. Haight, R. H. Storz, J. Stark, R. R. Freeman, and P. H. Bucksbaum, "Time-Resolved and Angle-Resolved Photoemission-Study of Inp(110)," *Physical Review B*, vol. 32, pp. 3669-3675, 1985.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

194. J. Bokor, "Review of Coherent Xuv Sources - Lasers and Nonlinear Optics," *Journal of the Optical Society of America a-Optics Image Science and Vision*, vol. 2, pp. P28-P28, 1985.
195. R. M. Jopson, R. R. Freeman, W. E. Cooke, and J. Bokor, "2-Photon Spectroscopy of 7sⁿd Autoionizing States of Barium," *Physical Review A*, vol. 29, pp. 3154-3158, 1984.
196. R. Haight, J. Bokor, R. H. Storz, J. B. Stark, P. H. Bucksbaum, and R. R. Freeman, "Photoemission Apparatus Using Xuv Harmonics of a Picosecond Krf Laser," *Proceedings of the Society of Photo-Optical Instrumentation Engineers*, vol. 476, pp. 61-64, 1984.
197. W. E. Cooke, R. M. Jopson, L. A. Bloomfield, R. R. Freeman, and J. Bokor, "Correlations in Highly Excited 2-Electron Atoms - Planetary Behavior," *Aip Conference Proceedings*, pp. 91-100, 1984.
198. H. Bucksbaum and J. Bokor, "Rapid melting and regrowth velocities in silicon heated by ultraviolet picosecond laser pulses," *Physical Review Letters*, vol. 53, pp. 182-5, 1984.
199. J. Bokor, R. Haight, R. H. Storz, J. Stark, R. R. Freeman, and P. H. Bucksbaum, "Photoemission-Studies of Surfaces Using Picosecond Pulses of Coherent Extreme-Ultraviolet Radiation," *Journal of the Optical Society of America B-Optical Physics*, vol. 1, pp. 529-529, 1984.
200. A. Bloomfield, R. R. Freeman, W. E. Cooke, and J. Bokor, "Angular-Momentum Dependence of Autoionization Rates in Doubly Excited Rydberg States of Ba," *Physical Review Letters*, vol. 53, pp. 2234-2237, 1984.
201. R. M. Jopson, R. R. Freeman, W. E. Cooke, and J. Bokor, "Electron Shake-up in 2-Photon Excitation of Core Electrons to Rydberg Autoionizing States," *Physical Review Letters*, vol. 51, pp. 1640-1643, 1983.
202. R. M. Jopson, S. Darack, R. R. Freeman, and J. Bokor, "Laser-Plasma-Induced Extreme-Ultraviolet Radiation from Liquid Mercury," *Optics Letters*, vol. 8, pp. 265-267, 1983.
203. R. W. Falcone and J. Bokor, "Dichroic Beam Splitter for Extreme-Ultraviolet and Visible Radiation," *Optics Letters*, vol. 8, pp. 21-23, 1983.
204. H. Bucksbaum and J. Bokor, "Measurement of fast melting and regrowth velocities in picosecond laser heated silicon," in *Laser-Solid Interactions and Transient Thermal Processing of Materials*: Elsevier, New York, NY, USA., 1983, pp. 51-6.
205. H. Bucksbaum and J. Bokor, "Time Resolved Amorphous-Silicon Formation from Laser Melted Liquid Silicon Films," *Aip Conference Proceedings*, pp. 279-287, 1983.
206. J. Bokor, L. Eichner, R. H. Storz, P. H. Bucksbaum, and R. R. Freeman, "Wavelength Conversion with Excimer Lasers," *Aip Conference Proceedings*, pp. 143-150, 1983.
207. J. Bokor, P. H. Bucksbaum, and R. R. Freeman, "Generation of 35.5-Nm Coherent Radiation," *Optics Letters*, vol. 8, pp. 217-219, 1983.
208. J. Bokor, P. H. Bucksbaum, and D. H. Auston, "Measurement of Picosecond Ultraviolet-Laser Pulse-Widths Using an Electrical Auto-Correlator," *Applied Physics Letters*, vol. 42, pp. 342-344, 1983.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

209. J. C. White, J. Bokor, and D. Henderson, "Optically Pumped Atomic Thulium Lasers," *Ieee Journal of Quantum Electronics*, vol. 18, pp. 320-322, 1982.
210. M. Jopson, R. R. Freeman, J. Bokor, and W. E. Cooke, "Planetary Atoms," *Journal of the Optical Society of America*, vol. 72, pp. 1835-1836, 1982.
211. M. Jopson, R. R. Freeman, and J. Bokor, "4-Wave Sum Frequency Generation Below 100 Nm Hg Vapor," *Applied Physics B-Photophysics and Laser Chemistry*, vol. 28, pp. 203-203, 1982.
212. R. M. Jopson, R. R. Freeman, and J. Bokor, "Laser-Produced Plasmas in Hg - a Source of Pulsed Xuv Radiation," *Aip Conference Proceedings*, pp. 303-304, 1982.
213. Heaven, T. A. Miller, R. R. Freeman, J. C. White, and J. Bokor, "2-Photon Absorption, Laser-Induced Fluorescence Detection of C1 Atoms," *Chemical Physics Letters*, vol. 86, pp. 458-462, 1982.
214. R. R. Freeman, R. M. Jopson, J. Bokor, and P. Bucksbaum, "Laser Generation of Light in the Extreme Ultraviolet and Soft-X-Ray Regime," *Aip Conference Proceedings*, pp. 491-494, 1982.
215. R. R. Freeman, R. M. Jopson, and J. Bokor, "Generation of Light Below 100nm in Hg Vapor," *Aip Conference Proceedings*, pp. 422-430, 1982.
216. R. R. Freeman, J. Bokor, and W. E. Cooke, "Four-wave parametric mixing in optically inverted barium ions," *Physical Review A (General Physics)*, vol. 26, pp. 3029-30, 1982.
217. R. R. Freeman, J. Bokor, and W. E. Cooke, "4-Wave Parametric Mixing in Optically Inverted Barium Ions," *Physical Review A*, vol. 26, pp. 3029-3030, 1982.
218. P. H. Bucksbaum, J. Bokor, J. C. White, and R. H. Storz, "A Picosecond, Tunable Krf-Star Excimer Laser Source," *Applied Physics B-Photophysics and Laser Chemistry*, vol. 28, pp. 128-128, 1982.
219. J. Bokor, R. R. Freeman, and W. E. Cooke, "Autoionization-pumped laser," *Physical Review Letters*, vol. 48, pp. 1242-5, 1982.
220. J. Bokor, R. R. Freeman, and W. E. Cooke, "Selective Autoionization - a New Method for Producing Population-Inversion in Atomic Ions," *Applied Physics B-Photophysics and Laser Chemistry*, vol. 28, pp. 200-200, 1982.
221. J. Bokor, R. R. Freeman, and W. E. Cooke, "Photo-Autoionization Pumped Ba Ion Laser," *Aip Conference Proceedings*, pp. 153-162, 1982.
222. J. C. White, J. Bokor, R. R. Freeman, and D. Henderson, "Tunable Arf Excimer-Laser Source," *Optics Letters*, vol. 6, pp. 293-294, 1981.
223. J. C. White, J. Bokor, and R. R. Freeman, "Narrow-Linewidth Tunable Arfstar Excimer-Laser Source," *Ieee Journal of Quantum Electronics*, vol. 17, pp. 80-80, 1981.
224. Rothschild, H. Egger, R. T. Hawkins, J. Bokor, H. Pummer, and C. K. Rhodes, "High-Resolution Spectroscopy of Molecular-Hydrogen in the Extreme Ultraviolet Region," *Physical Review A*, vol. 23, pp. 206-213, 1981.
225. J. Bokor, R. R. Freeman, J. C. White, and R. H. Storz, "2-Photon Excitation of the N=3 Level in H and D Atoms," *Ieee Journal of Quantum Electronics*, vol. 17, pp. 223-223, 1981.
226. J. Bokor, R. R. Freeman, and J. C. White, "Generation of Microjoule-Level Outputs in the Vuv through 4-Wave Parametric Interactions in Mercury," *Journal of the Optical Society of America*, vol. 71, pp. 368-368, 1981.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

227. J. Bokor, R. R. Freeman, R. L. Panock, and J. C. White, "Generation of High-Brightness Coherent Radiation in the Vacuum Ultraviolet by 4-Wave Parametric Oscillation in Mercury-Vapor," *Optics Letters*, vol. 6, pp. 182-184, 1981.
228. J. Bokor, R. R. Freeman, R. L. Panock, and J. C. White, "Generation of High Brightness Coherent Radiation in the Vuv Via 4-Wave Parametric Oscillation in Mercury-Vapor," *Ieee Journal of Quantum Electronics*, vol. 17, pp. 10-12, 1981.
229. J. Kligler, J. Bokor, and C. K. Rhodes, "Collisional and Radiative Properties of the H-2e,F1-Sigma-G+ State," *Physical Review A*, vol. 21, pp. 607-617, 1980.
230. R. T. Hawkins, H. Egger, J. Bokor, and C. K. Rhodes, "A Tunable, Ultrahigh Spectral Brightness Krstar Excimer Laser Source," *Applied Physics Letters*, vol. 36, pp. 391-392, 1980.
231. Egger, R. T. Hawkins, J. Bokor, H. Pummer, M. Rothschild, and C. K. Rhodes, "Tunable, Narrow Bandwidth 83-Nm Light-Source," *Journal of the Optical Society of America*, vol. 70, pp. 648-649, 1980.
232. Egger, R. T. Hawkins, J. Bokor, H. Pummer, M. Rothschild, and C. K. Rhodes, "Generation of High-Spectral-Brightness Tunable Xuv Radiation at 83 Nm," *Optics Letters*, vol. 5, pp. 282-284, 1980.
233. Bokor, J. Y. Zavelovich, and C. K. Rhodes, "Multi-Photon Ultraviolet Spectroscopy of Some 6p Levels in Krypton," *Physical Review A*, vol. 21, pp. 1453-1459, 1980.
234. Bokor, J. Zavelovich, and C. K. Rhodes, "Isotope Effect in Multi-Photon Ultraviolet Photolysis of Co," *Journal of Chemical Physics*, vol. 72, pp. 965-971, 1980.
235. Bokor and C. K. Rhodes, "Energy Splitting between the B-State and C-State of Xenon Chloride," *Journal of Chemical Physics*, vol. 73, pp. 2626-2628, 1980.
236. R. T. Hawkins, H. Egger, J. Bokor, and C. K. Rhodes, "Ultra-Narrow Linewidth Excimer Laser Sources," *Journal of the Optical Society of America*, vol. 69, pp. 1449-1449, 1979.
237. J. Eggleston, J. Dallarosa, W. K. Bischel, J. Bokor, and C. K. Rhodes, "Generation of 16-Mu-M Radiation in (Nh3)-N-14 by 2-Quantum Excitation of the 2-Nu-2-(7,5) State," *Journal of Applied Physics*, vol. 50, pp. 3867-3870, 1979.
238. J. Bokor, W. K. Bischel, and C. K. Rhodes, "Doppler-Free Spectroscopy of the Nu-2-Band in Nh3-N-14 - Application to 16-Mu-M Generation," *Journal of Applied Physics*, vol. 50, pp. 4541-4544, 1979.
239. W. K. Bischel, J. Bokor, D. J. Kligler, and C. K. Rhodes, "Non-Linear Optical Processes in Atoms and Molecules Using Rare-Gas Halide Lasers," *Ieee Journal of Quantum Electronics*, vol. 15, pp. 380-392, 1979.
240. W. K. Bischel, J. Bokor, J. Dallarosa, and C. K. Rhodes, "Arf Laser Photolysis of Oese .2. Effect of Vibrational-Excitation on Se(1s) Quantum Yields," *Journal of Chemical Physics*, vol. 70, pp. 5593-5597, 1979.
241. J. Bokor, W. K. Bischel, and C. K. Rhodes, "Optical Down Conversion of 10 Mu-M Radiation to 16 Mu-M Range," *Journal of the Optical Society of America*, vol. 68, pp. 671-672, 1978.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

Refereed Conference Papers

1. J. Bokor, "Prospects for emerging nanoelectronics in mainstream information processing systems," in IEEE/ACM International Conference on Computer Aided Design - Digest of Technical Papers. San Jose, CA, 2006.
2. C. Yang-Kyu, H. Daewon, E. Snow, J. Bokor, and K. Tsu-Jae, "Reliability study of CMOS FinFETs," in International Electron Devices Meeting 2003, 2003, pp. 7.6.1-4.
3. X. Peiqi, S. Min, B. Harteneck, A. Liddle, J. Bokor, and T. J. King, "FinFET SONOS flash memory for embedded applications," in IEEE International Electron Devices Meeting 2003, 2003, pp. 26.4.1-4.
4. C. Yang-Kyu, C. Leland, P. Ranade, L. Jeong-Soo, H. Daewon, S. Balasubramanian, A. Agarwal, M. Ameen, K. Tsu-Jae, and J. Bokor, "FinFET process refinements for improved mobility and gate work function engineering," in International Electron Devices Meeting. Technical Digest, 2002, pp. 259-62.
5. C. Yang-Kyu, N. Lindert, X. Peiqi, S. Tang, H. Daewon, E. Anderson, K. Tsu-Jae, J. Bokor, and H. Chenming, "Sub-20 nm CMOS FinFET technologies," in International Electron Devices Meeting. Technical Digest, 2001, pp. 19.1.1-4.
6. S. H. Tang, L. Chang, N. Lindert, C. Yang-Kyu, L. Wen-Chin, H. Xuejue, V. Subramanian, J. Bokor, K. Tsu-Jae, and H. Chenming, "FinFET-a quasi-planar double-gate MOSFET," in 2001 IEEE International Solid-State Circuits Conference. Digest of Technical Papers, 2001, pp. 118-19.
7. Y. Moonsuk, T. Haga, C. Walton, and J. Bokor, ""Actinic-only" defects in EUVL mask blanks-native defects, barely detectable by visible-light inspection," in 2001 International Microprocesses and Nanotechnology Conference, 2001, pp. 88-9.
8. N. Lindert, C. Yang-Kyu, C. Leland, E. Anderson, L. Wenchin, K. Tsu-Jae, J. Bokor, and H. Chenming, "Quasi-planar NMOS FinFETs with sub-100 nm gate lengths," in Device Research Conference, 2001, pp. 26-7.
9. N. Lindert, Y. K. Choi, L. Chang, E. Anderson, W. C. Lee, T. J. King, J. Bokor, and C. Hu, "Quasi-planar FinFETs with selectively grown germanium raised source/drain," in IEEE International SOI Conference, 2001, pp. 111-12.
10. J. Kedzierski, I. MeiKei, X. Peiqi, J. Bokor, K. Tsu-Jae, and H. Chenming, "Design analysis of thin-body silicide source/drain devices," in IEEE International SOI Conference, 2001, pp. 21-2.
11. S. H. Tang, X. Peiqi, J. Bokor, and H. Chenming, "Comparison of short-channel effect and offstate leakage in symmetric vs. asymmetric double gate MOSFETs," in IEEE International SOI Conference, 2000, pp. 120-1.
12. X. Peiqi, J. Kedzierski, V. Subranmanian, J. Bokor, K. Tsu-Jae, and H. Chenming, "60 nm planarized ultra-thin body solid phase epitaxy MOSFETs," in 58th DRC. Device Research Conference, 2000, pp. 67-8.
13. J. Kedzierski, P. Xuan, E. H. Anderson, J. Bokor, K. Tsu-Jae, and H. Chenming, "Complementary silicide source/drain thin-body MOSFETs for the 20 nm gate length regime," in International Electron Devices Meeting, 2000, pp. 57-60.
14. Y. A.-K. Choi, J. Yoo-Chan, P. Ranade, H. Takenuchi, K. Tsu-Jae, J. Bokor, and H. Chenming, "30 nm ultra-thin-body SOI MOSFET with selectively deposited Ge raised S/D," in 58th DRC. Device Research Conference, 2000, pp. 23-4.

Resume of Jeffrey Bokor, Ph.D.

Curriculum Vitae - Jeffrey Bokor

15. L. Chang, S. Tang, K. Tsu-Jae, J. Bokor, and H. Chenming, "Gate length scaling and threshold voltage control of double-gate MOSFETs," in International Electron Devices Meeting, 2000, pp. 719-22.
 16. C. Yang-Kyu, K. Asano, N. Lindert, V. Subramanian, K. Tsu-Jae, J. Bokor, and H. Chenming, "Ultra-thin body SOI MOSFET for deep-sub-tenth micron era," in International Electron Devices Meeting 1999, pp. 919-21.
 17. H. Xuejue, L. Wen-Chin, K. Charles, D. Hisamoto, C. Leland, J. Kedzierski, E. Anderson, H. Takeuchi, C. Yang-Kyu, K. Asano, V. Subramanian, K. Tsu-Jae, J. Bokor, and H. Chenming, "Sub 50-nm FinFET: PMOS," in International Electron Devices Meeting, 1999, pp. 67-70.
 18. V. Subramanian, J. Kedzierski, N. Lindert, H. Tam, Y. Su, J. McHale, K. Cao, T. J. King, J. Bokor, and C. Hu, "A bulk-Si-compatible ultrathin-body SOI technology for sub-100 nm MOSFETs," in 57th Annual Device Research Conference, 1999, pp. 28-9.
 19. M. S. Krishnan, L. Chang, K. Tsu-Jae, J. Bokor, and H. Chenming, "MOSFETs with 9 to 13 Å thick gate oxides," in International Electron Devices Meeting, 1999, pp. 241-4.
 20. M. Orshansky, D. Sinitsky, P. Scrobahaci, J. Bokor, and C. Hu, "Impact of velocity overshoot, polysilicon depletion, and inversion layer quantization on NMOSFET scaling," in 56th Annual Device Research Conference, 1998, pp. 18-19.
 21. M. S. Krishnan, Y. Yee Chia, L. Qiang, K. Tsu-Jae, J. Bokor, and H. Chenming, "Remote charge scattering in MOSFETs with ultra-thin gate dielectrics," in International Electron Devices Meeting, 1998, pp. 571-4.
 22. D. Sinitsky, F. Assaderaghi, M. Orshansky, J. Bokor, and H. Chenming, "An extension of BSIM3 model incorporating velocity overshoot," in International Symposium on VLSI Technology, Systems, and Applications, 1997, pp. 307-10.
 23. H. C. Wann, H. Chenming, K. Noda, D. Sinitsky, F. Assaderaghi, and J. Bokor, "Channel doping engineering of MOSFET with adaptable threshold voltage using body effect for low voltage and low power applications," in International Symposium on VLSI Technology, Systems, and Applications, 1995, pp. 159-63.
 24. F. Assaderaghi, D. Sinitsky, S. Parke, J. Bokor, P. K. Ko, and H. Chenming, "A dynamic threshold voltage MOSFET (DTMOS) for ultra-low voltage operation," in International Electron Devices Meeting, 1994, pp. 809-12.
 25. F. Assaderaghi, D. Sinitsky, H. Gaw, J. Bokor, P. K. Ko, and H. Chenming, "Saturation velocity and velocity overshoot of inversion layer electrons and holes," in International Electron Devices Meeting, 1994, pp. 479-82.
 26. R. H. Yan, K. F. Lee, D. Y. Jeon, Y. O. Kim, B. G. Park, M. R. Pinto, C. S. Rafferty, D. M. Tennant, E. H. Westerwick, G. M. Chin, M. D. Morris, K. Early, P. Mulgrew, W. M. Mansfield, R. K. Watts, A. M. Voshchenkov, J. Bokor, R. G. Swartz, and A. Ourmazd, "High performance 0.1- μ m room temperature Si MOSFETs," in 1992 Symposium on VLSI Technology., 1992, pp. 86-7.
-
-