

## **Appendices**

Appendix A RLE Publications and Papers Presented

Appendix B Current RLE Personnel

Appendix C Milestones

Appendix D RLE Research Support Index



## Appendix A. RLE Publications and Papers Presented

The first section of this bibliography includes papers and talks presented by RLE faculty, staff and students during 1991 and is in alphabetical order by conference name. Reprints of these papers may be obtained by contacting the authors directly.

Section 2 includes an alphabetical listing by author of journal articles that were published and accepted or submitted for publication. Book chapters by RLE authors are listed in Section 3. Section 4 of this bibliography lists RLE general publications and technical reports, and Section 5 is a list of RLE theses submitted during 1991. Section 6 contains miscellaneous publications.

### A.1 Meeting Papers

#### A.1.1 Papers Presented

- Acoustical Society of America Meeting*, 121st, Baltimore, Maryland, April 29 - May 3, 1991.
- Boyce, S., and C.Y. Espy-Wilson. "The F3 Trajectories of American English /r/'s."
- Stevens, K.N. "Models for Voicing and Aspiration in Stop Consonants."
- Zurek, P.M. "Interference Reduction for the Hearing Impaired."
- Acoustical Society of America Meeting*, 122nd, Houston, Texas, November 4-8, 1991.
- Power, M.H., and L.D. Braida. "A Physical Measure of Consistency Among Speech Parameter Vectors: Application to Speech Intelligibility Determination."
- Uchanski, R.M., K.M. Millier, D.E. Ronan, C.M. Reed, and L.D. Braida. "Effects of Token Variability on Resolution for Vowel Sounds."
- American Association for the Advancement of Science*, Annual Meeting, Washington, D.C., February 14-19, 1991.
- Pritchard, D.E., K. Boyce, and E. Cornell. "Single Ion Mass Spectroscopy."
- American Astronomical Society*, 177th Meeting, Philadelphia, Pennsylvania, January 14-17, 1991.
- Lehár, J., J.N. Hewitt, D.H. Roberts, and B.F. Burke. "VLA Determination of the Time Delay in 0957+561."
- Markert, T., M.L. Schattenburg, T. Isobe, J. Bauer, C. Canizares, J. O'Connor, J. Porter, and H.I. Smith. "Investigations of Materials for Ultra-Thin Window X-ray Detectors."
- American Physical Society, Division of Plasma Physics*, 33rd Annual Meeting, Tampa, Florida, November 4-8, 1991.
- Bers, A., and A.K. Ram. "Signature of Absolute and Convective Instabilities with Application to Space Plasmas."
- Chan, H.W., C. Chen, and R.C. Davidson. "Numerical Study of Relativistic Multiresonator Magnetron."
- Chow, C.C., A. Bers, and A.K. Ram. "Spatio-temporal Chaos in the Three Wave Interaction."
- Conde, M.E., and G. Bekefi. "Experimental Study of a 33.3 GHz Free Electron Laser Amplifier with a Reversed Axial Guide Magnetic Field."
- Nassi, M., B. Coppi, and L. Sugiyama. "Ignitor Fiducial Discharge."
- Ram, A.K., A. Bers, V. Fuchs, and M. Shoucri. "Current Drive by Fast Alfvén Waves and in Combination with Lower Hybrid Waves."
- Shvets, G., J. Wurtele, W. Moli, and A. Sessler. "Theoretical Analysis of Frequency Shifts by Ionization Fronts."
- Sugiyama, L., and B. Coppi. "Near Term Experiments on Advanced Fusion."
- Wurtele, J., and G. Shvets. "Theory of a Free Electron Laser Operating with a Reversed Axial Magnetic Field."
- American Physical Society*, March Meeting, Cincinnati, Ohio, March 18-22, 1991.
- Alerhand, O.L. "Finite-Temperature Equilibrium Properties of Steps on Si(100) Surfaces."

- Berker, A.N. "Quenched Fluctuation-Induced Second-Order Phase Transitions."
- Hoston, W., and A.N. Berker. "New Multicritical Phase Diagrams from the Blume-Emery-Griffiths Model with Repulsive Biquadratic Interactions."
- Meade, R.D., O.L. Alerhand, and M.L. Roukes. "Classical Buttiker Model of Ballistic Transport in Mesoscopic Junctions."
- Melngailis, J. "Focused Ion Beam Patterning."
- Netz, R.R., and A.N. Berker. "Monte Carlo Mean-Field Theory and Frustrated Systems in Two and Three Dimensions."
- Rappe, A.M., and J.D. Joannopoulos. "Convergent and Transferable Pseudopotential for Ab-Initio LDA Calculations."
- Rittenhouse, G., K. Early, and J.M. Graybeal. "A Novel Structure for a Three-Terminal Superconducting Resonant Tunneling Device."
- Zhao, Y., D.C. Tsui, S.J. Allen, K. Ismail, H.I. Smith, and D.A. Antoniadis. "Spectroscopy of 2-Deg in a Grid Gate Patterned Heterostructure."
- American Physical Society*, Spring Meeting, Washington, D.C., April 22-25, 1991.
- Chang, P., S. Paine, R. Lutwak, T. Ducas, and D. Kleppner. "Millimeter Wave Measurement of the Rydberg Constant."
- Iu, C., M. Courtney, T. Catunda, H. Jiao, and D. Kleppner. "Observation of the Stark Effect in a One-dimensional Hydrogen-like Atom."
- Kleppner, D. "'Quantum Chaos': An Experimental View."
- Pritchard, D.E. "The Physics of Atom-Molecule Collisions: Regularities, Scaling and Dynamics."
- Wong, N.C., and D. Lee. "Experimental Demonstration of a Tunable Optical Frequency Divider."
- American Physical Society, Interdisciplinary Laser Science/LSTG Meeting*, Monterey, California, September 23-27, 1991.
- Ketterle, W., A. Martin, M.A. Joffe, and D.E. Pritchard. "Slowing Atoms with Diffuse Laser Light."
- American Vacuum Society Meeting*, Seattle, Washington, November 1991.
- Kolodziejski, L.A. "Chemical Beam Epitaxy of II-VI Semiconductors" (invited paper).
- Applied Computational Electromagnetics Society Conference*, Monterey, California, March 19-22, 1991.
- Li, K., M.A. Tassoudji, R.T. Shin, and J.A. Kong. "Simulation of Electromagnetic Phenomena Using a Finite Difference-Time Domain Technique."
- Armed Forces Communication and Electronics Association*, Eatontown, New Jersey, May 16, 1991.
- Lim, J.S. "Advanced Television Systems."
- Association for Research in Otolaryngology*, 15th Midwinter Meeting, St. Petersburg Beach, Florida, February 2-6, 1991.
- Donahue, K.M., J.J. Rosowski, and W.T. Peake. "Can the Motion of the Human Malleus be Described as Pure Rotation?"
- Guinan, J.J. "Inhibition of Stimulus Frequency Emissions by Medial Olivocochlear Efferent Neurons in Cats."
- Merchant, S.N., M.E. Ravicz, and J.J. Rosowski. "The Acoustic Input Impedance of the Stapes and Cochlea in Human Temporal Bones."
- Peake, W.T., J.J. Rosowski, and T.J. Lynch III. "Acoustic Coupling to Cochlear Windows."
- Association for Research in Vision and Ophthalmology*, Annual Meeting, Sarasota, Florida, April 28 - May 3, 1991.
- Huang, D., W.G. Stinson, J.S. Schuman, C.P. Lin, C.A. Puliatito, and J.G. Fujimoto. "High Resolution Measurement of Retinal Thickness Using Optical Coherence Reflectometry."
- AT&T Bell Laboratories*, Holmdel, New Jersey, April 7-8, 1991.
- Melngailis, J. "Focused Ion Beam Microfabrication."
- Conference on Atmospheric Transmission Models*, Annual Review, Phillips Laboratory, Hanscom Air Force Base, Massachusetts, June 12, 1991.
- Rosenkranz, P.W. "Overview of Line Coupling in the 5 mm Band of Oxygen."
- Conference on Lasers and Electro-Optics/Quantum Electronics Laser Science*, Baltimore, Maryland, May 12-17, 1991.
- Cheng, T.K., H.J. Zeiger, A.S. Kazeroonian, E.P. Ippen, G. Dresselhaus, and M.S. Dresselhaus.

- "Time-Resolved Coherent Phonon Study of the Insulator-Metal Phase Transition in  $Ti_2O_3$ ."
- Gabetta, G., D. Huang, J. Jacobson, M. Ramaswamy, H.A. Haus, E.P. Ippen, and J.G. Fujimoto. "Femtosecond Pulse Generation in  $Ti:Al_2O_3$  Using Nonlinear Intracavity Elements."
- Hultgren, C.T., and E.P. Ippen. "Ultrafast Refractive Index Changes in AlGaAs Diode Lasers."
- Fujimoto, J.G. "Femtosecond Lasers and Ultrafast Measurement Techniques."
- Wong, N.C. "Squeezed Amplification in a Grain-Saturated Parametric Amplifier."
- Conference on Neural Networks for Computing*, Snowbird, Utah, April 2-5, 1991.
- Wyatt, J.L. "The MIT Vision Chip Project: Analog VLSI Systems for Real-Time Image Acquisition and Early Vision Processing" (poster session).
- Design Automation Conference*, San Francisco, California, June 17-July 2, 1991.
- Devadas, S., K. Keutzer, and S. Malik. "A Synthesis-Based Test Generation and Compaction Algorithm for Multifaults."
- McIlrath, M. "Semiconductor Process Representation (SPR) Server Prototyping."
- McIlrath, M. "Mini-SPR Prototype Programming Interface."
- Device Research Conference*, Boulder, Colorado, June 1991.
- Eugster, C.C., J.A. del Alamo, and M.J. Roeks. "Planar Field-Effect Coupled Quantum Wires."
- Electronic Properties of 2-D Systems Conference*, Ninth, Nara, Japan, July 8-12, 1991.
- Kumar, A. "Self-Consistent Calculations on Confined Electrons in Three-Dimensional Geometries."
- Enrico Fermi International School of Physics, Course CSVIII*, Milan, Italy, July 1991.
- Prentiss, M.G., N. Bigelow, M.S. Shahriar, P. Hemmer, K. Berggren, J. Mervis, and S. Ezekiel. "Laser Manipulation of Atoms and Ions."
- Five Joint Magnetism and Magnetic Materials - Intermag Conference*, Pittsburgh, Pennsylvania, June 18-21, 1991.
- Berker, A.N. "Absence of Temperature-Driven First-Order Phase Transitions in Systems with Random Bonds."
- Hoston, W., and A.N. Berker. "Dimensionality Effects on the Multicritical Phase Diagrams of the Blume-Emery-Griffiths Model with Repulsive Biquadratic Coupling: Mean-Field and Renormalization-Group Studies."
- Hoston, W., and A.N. Berker. "New Multicritical Phase Diagrams from the Blume-Emery-Griffiths Model with Repulsive Biquadratic Interactions."
- Netz, R.R., and A.N. Berker. "Hard-Spin Mean-Field Theory: Formulation for Ising, XY, and Other Models."
- Netz, R.R., and A.N. Berker. "Monte Carlo Mean-Field Theory and Frustrated Systems in Two and Three Dimensions."
- Gordon Conference on Atomic Physics*, Wolfeboro, New Hampshire, July 1-5, 1991.
- Ketterle, W., and D.E. Pritchard. "Trapping Neutral Particles in Static Fields" (poster session).
- Ketterle, W., M. Joffe, A. Martin, C. Freeman, and D.E. Pritchard. "Slowing Atoms in a Cavity with Diffuse Laser Light" (poster session).
- Gordon Conference on Nonlinear Optics and Lasers*, New London, New Hampshire, July 22-26, 1991.
- Fujimoto, J.G. "Femtosecond Pulse Generation with APM."
- IEEE Acoustics, Speech and Signal Processing Workshop on Applications of Signal Processing to Audio and Acoustics*, Mohonk Mountain House, New Paltz, New York, October 20-23, 1991.
- Delgutte, B. "Fundamental Issues in Auditory Modeling."
- Greenberg, J.E., and P.M. Zurek. "Adaptive Beamformer Performance in Reverberation."
- IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, Lahaina, Maui, Hawaii, June 3-6, 1991.
- Picard, R.W., I.M. Elfael, and A.P. Pentland. "Markov/Gibbs Texture Modeling: Aura Matrices and Temperature Effects."
- IEEE International Conference on Plasma Science*, Williamsburg, Virginia, June 3-5, 1991.

- Sugiyama, Linda E. "Time Dependent Model for D-<sup>3</sup>He Fusion Ignition and Burning in a Tokamak."
- IEEE International Conference on Robotics and Automation*, Sacramento, California, April 1991.
- Wyatt Jr., J.L., D.L. Standley, and W. Yang. "The MIT Vision Chip Project: Analog VLSI Systems for Fast Image Acquisition and Early Vision Processing."
- IEEE International Symposium on Electromagnetic Compatability*, Cherry Hill, New Jersey, August 12-16, 1991.
- Lee, C.F., K. Li, S.Y. Poh, R.T. Shin, and J.A. Kong. "Electromagnetic Radiation from a VLSI Package and Heatsink Configuration."
- IEEE Microwave Theory and Techniques*, Boston, Massachusetts, June 13-14, 1991.
- Li, K., M.A. Tassoudji, R.T. Shin, and J.A. Kong. "Simulation of Electromagnetic Phenomena Using a Finite Difference-Time Domain Technique."
- IEEE Particle Accelerator Conference*, San Francisco, California, May 6-9, 1991.
- Conde, M.E., G. Bekefi, and J.S. Wurtele. "A 33 GHz Free Electron Laser Test-Stand for a High Gradient Accelerating Structure."
- Integrated Photonics Research Conference*, Monterey, California, April 9-11, 1991.
- Fujimoto, J.G., and H.A. Haus. "Femtosecond Time Domain Diagnostics of Nonlinear and Linear Waveguide Properties."
- Lau, S.D., J.P. Donnelly, C.A. Wang, R.B. Goodman, and R.H. Rediker. "Optical Wavefront Phase Tilt Measurement and Correction Using AlGaAs Integrated Guided-Wave Components."
- International A.D. Sakharov Conference on Physics*, First, the Lebedev Physical Institute of the USSR Academy of Sciences, Moscow, USSR, May 27-31, 1991.
- Coppi, B. "High Energy Plasmas in the Laboratory and in Astrophysics."
- International Association for Mathematics and Computers in Simulation World Congress on Computation and Applied Mathematics*, Trinity College, Dublin, Ireland, July 22-26, 1991.
- Seidel, M.N., and J.L. Wyatt, Jr. "Settling-Time Bounds for Switched-Capacitor Networks."
- International Conference on Acoustics, Speech and Signal Processing*, 1991, Toronto, Ontario, Canada, May 14-17, 1991.
- Cheung, S., and J.S. Lim. "Combined Multi-Resolution (Wideband/Narrowband) Spectrogram."
- Preisig, J.C. "A Robust Adaptive Matched Field Processor Based Upon a Minmax Criterion."
- Wornell, G.W. "Communication Over Fractal Channels."
- International Conference on Computer-Aided Design*, Santa Clara, California, November 10-14, 1991.
- Lumsdaine, A., M. Reichelt, and J. White. "Conjugate Direction Waveform Methods for Transient Two-Dimensional Simulation of MOS Devices."
- Silveira, L.M., J. White, and S. Leeb. "A Modified Envelope-Following Approach to Clocked Analog Circuit Simulation."
- Van Aelten, F., J. Allen, and S. Devadas. "Verification of Relations between Synchronous Machines."
- International Conference on Coherent and Non-linear Optics*, 14th, Leningrad, USSR, September 24-27, 1991.
- Fujimoto, J.G. "Femtosecond Pulse Generation with Additive Pulse Modelocking in Solid State Lasers."
- International Conference on Research Trends in Chaotic Dynamics and Transport in Fluids and Plasmas*, LaJolla, California, February 18-20, 1991.
- Chow, C.C., A.K. Ram, and A. Bers. "Spatio-temporal Chaos in the Nonlinear Three Wave Interaction."
- International Electron Devices Meeting*, Washington, DC, December 9-11, 1991.
- Rahmat, K., J. White, and D.A. Antoniadis. "Computation of Drain and Substrate Currents in Ultra-Short-Channel nMOSFET's Using the Hydrodynamic Model."
- International Free Electron Laser Conference*, 13th, Santa Fe, New Mexico, August 25-30, 1991.

- Conde, M.E., G. Bekefi, and J.S. Wurtele. "A 33 GHz Reversed Field Free Electron Laser."
- Jerby, E., E. Agmon, B. Hadas, and M. Bensal. "Traveling Waves Free Electron Laser (TWFL) Experiment."
- Jerby, E., G. Bekefi, and T. Hara. "Macropulse Formation in a Free Electron Laser Oscillator."
- International Geoscience and Remote Sensing Symposium*, (IGARSS '91), Helsinki University of Technology, Espoo, Finland, June 3-6, 1991.
- Kwok, R., Y. Hara, R.G. Atkins, S.H. Yueh, R.T. Shin, and J.A. Kong. "Application of Neural Networks to Sea Ice Classification Using Polarimetric Sar Images."
- Le Toan, T., S.V. Nghiem, J.A. Kong, and H.C. Han. "Application of Random Medium Model to Remote Sensing of Vegetation."
- International MicroProcess Conference*, Kanazawa, Japan, July 15-18, 1991.
- Schattenburg, M.L., and H.I. Smith. "X-ray Nanolithography—the Clearest Path to 0.1 and sub-0.15 $\mu$ m ULSI."
- International Microwave Landing System Progress Forum*, Amsterdam, the Netherlands, June 25-26, 1991.
- Yang, Y-C.E. "ILS/MLS Frequency Management Assessment."
- International Radio Science Union North American Radio Science Meeting*, Ottawa, Ontario, Canada, June 24-28, 1991.
- Bonanni, P.G., and D.H. Staelin. "Detection and Measurement of Atmospheric Wave Structure Using a Scanning 118-GHz Spectrometer."
- International Sherwood Fusion Theory Conference*, Seattle, Washington, April 22-24, 1991.
- Kupfer, K., A. Bers, and A.K. Ram. "Fast Electron Transport in Current Drive."
- Sugiyama, L., B. Coppi, and M. Nassi. "Physics Basis for Compact Ignition Experiments."
- International Symposium on Electron, Ion, and Photon Beams*, 35th, Seattle, Washington, May 28-31, 1991.
- Moel, A., W. Chu, K. Early, Y-C. Ku, E.E. Moon, F. Tsai, H.I. Smith, M.L. Schattenburg, C.D. Fung, F.W. Griffith, and L.E. Haas. "Fabrication and Characterization of High-Flatness Mesa-Etched Silicon Nitride X-ray Masks."
- Schattenburg, M.L., K. Li, R.T. Shin, J.A. Kong, and H.I. Smith. "Electromagnetic Calculation of Soft X-ray Diffraction from Nanometer-Scale Gold Structures."
- International Symposium on Nanostructures and Mesoscopic Systems*, Santa Fe, New Mexico, May 1991.
- Altschuler, B.L. "Thermodynamics of Mesoscopic Systems."
- International Symposium on Ultrafast Processes in Spectroscopy*, Seventh, Bayreuth, Germany, October 7-10, 1991.
- Gabetta, G., D. Huang, J. Jacobson, M. Ramaswamy, H.A. Haus, E.P. Ippen, and J.G. Fujimoto "Femtosecond Pulse Generation in Ti:Al<sub>2</sub>O<sub>3</sub> Using Nonlinear Intracavity Modulators."
- International Workshop on Logic Synthesis*, Research Triangle Park, North Carolina, May 7-10, 1991.
- Ghosh, A, and S. Devadas. "Implicit Depth-First State Traversal of Sequential Machines."
- Van Aelten, F., J. Allen, and S. Devadas. "Verification of Relations Between Synchronous Machines."
- Materials Research Society Meeting*, Spring, Anaheim, California, April 1991.
- Karam, N.H., V. Haven, K. Ismail, F. Legoues, J. Carter, and H.I. Smith. "A New Approach for Low Defect Density GaAs on Patterned Si Substrates by MOCVD."
- Materials Research Society Meeting*, Boston, Massachusetts, December 1991.
- Kunz, R., D.J. Ehrlich, J. Melngailis, and M.W. Horn. "Selective Area Growth of Metal Oxide Films Induced by Patterned Excimer Laser Surface Photolysis."
- Microcircuit Engineering 91 International Conference on Microlithography*, Rome, Italy, September 17-19, 1991.
- Chu, W., S.A. Rishton, M.L. Schattenburg, D.P. Kern, and H.I. Smith. "Fabrication of 50 nm Line-and-Space X-ray Masks in Thick Au Using a 50 keV Electron Beam System."
- Chu, W., M.L. Schattenburg, and H.I. Smith. "Low-Stress Gold Electroplating for X-ray Masks."

- Early, K., M.L. Schattenburg, D.B. Olster, M.I. Shepard, and H.I. Smith. "Diffraction in X-ray Proximity Printing: Comparing Theory and Experiment for Gratings, Lines, and Spaces."
- Microelectronics and Computer Technology Corporation Workshop on Parallel Computing*, Dallas, Texas, February 20-21, 1991.
- Lumsdaine, A., M. Reichelt, and J. White. "Parallel Circuit Simulation."
- Microwave Landing System User Forum*, Alaska Region, Anchorage, Alaska, September 20, 1991.
- Yang, Y.-C. "Project Summary: Instrument Landing System/Microwave Landing System Frequency Management Assessment."
- NaseCode VII*, Snowbird, Colorado, April 5-11, 1991.
- Odeh, F., and J. White. "Multirate A-stability."
- National Association of Broadcasters Meeting*, Las Vegas, Nevada, April 15-18, 1991.
- Lim, J.S. "Progress on HDTV Research at MIT."
- National Center for Integrated Photonics Workshop on Phase Array Radar*, Arrowhead, California, November 11-12, 1991.
- Haus, H.A. "Proposed Approach to the Phased Array Radar Demonstration Project."
- Hultgren, C.T., D.J. Dougherty, and E.P. Ippen. "Optical Nonlinearities in GaAs Lasers and Amplifiers."
- NATO Advanced Study Institute on Liquid Crystals*, Erice, Italy, May 2-12, 1991.
- Berker, A.N. "Microscopic Theory of Polar Liquid Crystals and Multiply Reentrant Phase Diagrams."
- Netz, R.R., and A.N. Berker. "The Mean-Field Theory for Frustration, Layered Magnets, and Reentrant Liquid Crystals."
- NOAA Workshop on Long-Term Upper Stratospheric and Mesospheric Temperature Measurements and Their Importance of Global Change*, University of Maryland, June 25, 1991.
- Staelin, D.H., and P.W. Rosenkranz. "The Advanced NOAA Instrument Scheduled for the European Platform."
- Ocean Acoustics Signal Processing Workshop*, Office of Naval Research, Washington, DC, September 6, 1991.
- Baggeroer, A.B. "Environmentally Robust Matched Field Processing."
- Office of Naval Research/Accelerated Research Initiative Workshop on the Electromagnetic Properties of Sea Ice*, University of Washington, Seattle, Washington, December 5-6, 1991.
- Kong, J.A. "Electromagnetic Modelling: Inverse."
- Optical Society of America*, Annual Meeting, San Jose, California, November 3-8, 1991.
- Corcoran, C.J., R.H. Rediker, and K. Rauschenbach. "Effects on the Operation of an External-Cavity Laser of Phase Differences Between Multiple Inputs into the Cavity."
- Joneckis, L.G., and J.H. Shapiro. "Classical and Quantum Noise Transformations Generated by a Kerr Nonlinearity."
- Mecozzi, A., H.A. Haus, and Y. Lai. "Noise of Mode-Locked Lasers."
- Moore, J.D., and H.A. Haus. "Intrapulse-Raman-Scattering Soliton Timing Jitter in Ultralong Distance Transmission."
- Shapiro, J.H. "Phase-Conjugate Quantum Communication at Zero Error Probability with Finite Average Photon Number."
- Wong, N.C. "Precise Optical Frequency Comb Generator Based on Optical Parametric Oscillators."
- Wong, N.C. "Gravitational Wave Detection Via an Optical Parametric Oscillator."
- Wong, N.C., and D. Lee. "A Tunable Optical Parametric Oscillator for Precision Measurements."
- Wong, N.C., K.X. Sun, and J.H. Shapiro. "Squeezed Amplification in a Gain-Saturated Parametric Amplifier."
- Progress in Electromagnetics Research Symposium*, Cambridge, Massachusetts, July 1-5, 1991.
- Lee, H., S.M. Ali, and J.A. Kong. "Hybrid-Mode Analysis of High-Tc Superconducting Planar Transmission Lines."
- Rosenkranz, P.W. "Rough-Sea Microwave Emissivities Measured with the SSM/I."
- Schattenburg, M.L., K. Li, R.T. Shin, J.A. Kong, and H.I. Smith. "Calculation of Soft X-ray Diffraction from Nanometer-Scale Gold

- Structures Using a Finite-Element Time-Domain Method."
- Physics Colloquium*, Stony Brook, New York, October 15, 1991.
- Pritchard, D.E. "Atom Optics and Atom Interferometers."
- Santa Cruz Conference on Advanced Research in VLSI*, University of California, Santa Cruz, California, March 23-31, 1991.
- Ashar, P., S. Devadas, and K. Keutzer. "Testability Properties of Multilevel Logic Networks Derived from Binary Decision Diagrams."
- Semiconductor Research Corporation (SRC) Computer Integrated Manufacturing of Integrated Circuits (CIM-IC) Workshop*, Raleigh, North Carolina, August 21-23, 1991.
- McIlrath, M. "A General Semiconductor Process Modeling Framework."
- Society for Neuroscience*, New Orleans, Louisiana, November 10-15, 1991.
- Srinivasan, M.A., and K. Dandekar. "Role of Mechanics in Cutaneous Mechanoreceptor Response."
- Society of Information Display*, Anaheim, California, May 6-8, 1991.
- Lim, J.S. "ATVA-Progressive System."
- Society of Motion Picture and Television Engineers*, 25th Annual Conference, Detroit, Michigan, February 1-2, 1991.
- Baylon, D.M., and J.S. Lim. "Video Compression and Noise Reduction Using Transform/Subband Coding and Adaptive Amplitude Modulation."
- SPIE International Symposium on High Power Lasers*, Los Angeles, California, January 20-25, 1991.
- Chen, S-C., G. Bekefi, and R. Temkin. "Phase Control of a Long-Pulse Relativistic Magnetron Through Injection Locking."
- Fujimoto, J.G., P.A. Schulz, and T.Y. Fan. "Femtosecond Pulse Generation in Solid State Lasers."
- SPIE International Symposium on Optical Applied Science and Engineering*, San Diego, California, July 20-26, 1991.
- Basu, S., M. Muendel, J. Goodberlet, S. Kaushik, and P.L. Hagelstein. "A Search for Gain at  $191\text{\AA}$ ."
- Basu, S., P.L. Hagelstein, A. Morganthaler, S. Kaushik, M. Muendel, and J. Goodberlet. "Transient X-ray Laser Schemes at  $1\mu$  and at  $2\mu$ ."
- Braud, J.P. "Whispering-Gallery Mirrors for Short-Wavelength Laser Cavities: Shapes and Tolerances."
- Braud, J.P. "Polarizing Optics for the Soft X-ray Regime: Whispering-Gallery Mirrors and Multilayer Beamsplitters."
- Elfadel, I.M., and A.L. Yuille. "Mean-Field Theory for Grayscale Texture Synthesis Using Markov Random Fields."
- Markert, T.H., J.M. Bauer, C.R. Canizares, T. Isobe, S. Nenonen, J. O'Connor, M.L. Schattenburg, K.A. Flanagan, and M.V. Zombeck. "Proportional Counter Windows for the Bragg Crystal Spectrometer on AXAF."
- SPIE International Symposium on Optical Engineering and Photonics in Aerospace Sensing*, Orlando, Florida, April 1991.
- Green, T.J., Jr., J.H. Shapiro, and M.M. Menon. "Target Detection Performance Using 3-D Laser Radar Images."
- Hakkarainen, J. M., J.J. Little, H-S. Lee, and J.L. Wyatt, Jr. "Interaction of Algorithm and Implementation for Analog VLSI Stereo Vision."
- Standley, D., and B.K.P. Horn. "Analog CMOS IC for Object Position and Orientation."
- Yang, W. "Analog CCD Processors for Image Filtering."
- SPIE Microlithography Symposium*, San Jose, California, March 3-8, 1991.
- Melngailis, J. "Focused Ion Beam Induced Deposition—A Review."
- Statistical Mechanics Meeting*, 65th, New Brunswick, New Jersey, May 15-17, 1991.
- Hoston, W., and A.N. Berker. "Bicritical and Tetracritical Phase Diagrams of the BEG Model: Dimensionality Effects."
- Netz, R.R., and A.N. Berker. "Microscopic Theory of Smectic A and C Phases of Frustrated Liquid Crystals."

*Symposium on Applications of Wavelets to Signal Processing*, Wright-Patterson Air Force Base, Ohio, March 20-22, 1991.

Wornell, G.W., and A.V. Oppenheim. "Representation, Synthesis, and Processing of Self-Similar Signals."

*Symposium on Current Phonetic Research Paradigms: Implications for Speech Motor Control*, Stockholm, Sweden, August 12-16, 1991.

Perkell, J.S., M.A. Svirsky, M.L. Matthies, and M.I. Jordan. "Trading Relations Between Tongue-Body Raising and Lip Rounding in Production of the Vowel /u/."

*Technology Computer Aided Design/Semiconductor Process Representation Working Group*, Palo Alto, California, August 10, 1991.

McIlrath, M. "Report on SPR Prototyping."

McIlrath, M. "TCAD Framework Architectural Issues."

*TELECOM - Advanced Television Workshop*, Paris, France, May 24-29, 1991.

Lim, J.S. "Research at the MIT Advanced Television Research Program."

*Ultrashort Pulse Workshop*, Brooks Air Force Base, San Antonio, Texas, December 17-20, 1991.

Izatt, J.A., and J.G. Fujimoto. "Mechanisms and Diagnostics of Ultrashort Pulse Ocular Effects."

*VLSI Test Symposium*, Atlantic City, New Jersey, April 16, 1991.

Devadas, S., K. Keutzer, and A. Ghosh. "Recent Progress in Synthesis for Testability."

*Wisconsin Sematech Center of Excellence Review Committee Meeting*, Madison, Wisconsin, October 2-3, 1991.

Melngailis, J. "Focused Ion Beam Lithography for X-ray Mask Making."

*Workshop on Compound Semiconductors Materials and Devices (WOCSEMMAD)*, Ft. Lauderdale, Florida, February 18-20, 1991.

Bahl, S.R., and J.A. del Alamo. "InAlAs/n<sup>+</sup> - InGaAs HFETs: Impact of Dislocations and Channel Quantization."

*Workshop on Physics with Penning Traps*, Lertorp, Sweden, June 28-July 2, 1991.

Boyce, K. "Sub-PPB Mass Measurements on Single Ions."

*Workshop on Psychophysics of Speech Perception - II*, Utrecht, The Netherlands, July 1-5, 1991.

Uchanski, R.M., K.M. Millier, C.M. Reed, and L.D. Braida. "Effects of Token Variability on Resolution for Vowel Sounds."

*Workshop on Squeezed States and Uncertainty Relations*, College Park, Maryland, March 27-30, 1991.

Bergman, K., and H.A. Haus. "Squeezed Pulsed Light from a Fiber Ring Reflector."

Shapiro, J.H. "Going Through a Quantum Phase."

Shepard, S.R. "On the Measurement of Time for the Quantum Harmonic Oscillator."

## A.1.2 Papers To Be Presented

*American Physical Society Meeting*, Indianapolis, Indiana, March 16-20, 1992.

Aalberts, D.P., and A.N. Berker. "Hard-Spin Mean-Field Theory: Variational Free Energy and First-Order Phase Transitions."

Berker, A.N., and R.R. Netz. "Smectic C Order, In-Plane Domains, and Nematic Reentrance in a Frustrated Microscopic Model of Liquid Crystals."

Netz, R.R. "Symmetry-Breaking Fields in Frustrated Ising Systems on Square and Cubic Lattices."

Netz, R.R. "Multiple Reentrance and New Phases from the Blume-Emery-Griffiths Model in Three Dimensions: Monte Carlo Renormalization-Group Theory."

*IEEE International Conference on Acoustics, Speech, and Signal Processing*, San Francisco, California, March 23-26, 1992.

Beckmann, P.E., and B.R. Musicus. "A Group-Theoretic Framework for Fault-Tolerant Computation."

Isabelle, S.H., A.V. Oppenheim, and G.W. Wornell. "Effects of Convolution on Chaotic Signals."

Jachner, J., and H. Lee. "Cramer Rao Bounds on Direction Estimates for Closely Spaced Emitters in Multi-Dimensional Applications."

Myers, C., A. Singer, F. Shin, and E. Church. "Modeling Chaotic Systems with Hidden Markov Models."

Oppenheim, A.V., E. Weinstein, K.C. Zangi, M. Feder, and D. Gauger. "Single Sensor Active Noise Cancellation Based on the EM Algorithm."

Oppenheim, A.V., G.W. Wornell, S.H. Isabelle, and K.M. Cuomo. "Signal Processing in the Context of Chaotic Signals."

Preisig, J.C. "Optimal Minmax Estimation and the Development of Minmax Estimation Error Bounds."

Singer, A.C., G.W. Wornell, and A.V. Oppenheim. "Codebook Prediction: A Non-linear Signal Modeling Paradigm."

*IEEE International Conference on Thermodynamics and Statistical Mechanics*, Berlin, Germany, August 2-8, 1992.

Berker, A.N. "Critical Behavior Induced by Quenched Disorder."

Netz, R.R., and A.N. Berker. "Smectic C/A<sub>2</sub> Order, Domains, Reentrance in a Microscopic Model of Liquid Crystals."

*International Liquid Crystal Conference*, 14th, Pisa, Italy, June 21-26, 1992.

Netz, R.R., and A.N. Berker. "Smectic C Order, Nematic Reentrance, Domains, and Smectic A<sub>1</sub> - Smectic A<sub>2</sub> Transitions in a Frustrated Microscopic Model of Liquid Crystals."

*Specialist Meeting on Microwave Radiometry and Remote Sensing Applications*, Boulder, Colorado, January 14-16, 1992.

Rosenkranz, P.W. "Emission and Absorption of Microwaves by Atmospheric Oxygen and Water Vapor."

*Symposium on Frequency Control*, 46th, Hershey, Pennsylvania, May 27-29, 1992.

Wong, N.C., and D. Lee. "Optical Parametric Division" (invited talk).

### A.1.3 Published Meeting Papers

Alwan, A. "Modelling Speech Perception in Noise: A Case Study of the Place of Articulation Feature." *Proceedings of the 12th International Congress of Phonetic Sciences*, 2:78-81, Aix en Provence, France, August 19-24, 1991.

Annaswamy, A.M., and M.A. Srinivasan. "Adaptive Control for Grasping and Manipulation of Compliant Objects with Compliant Fingerpads."

*Proceedings of the American Control Conference*, Boston, Massachusetts, 1991.

Ashar, P., A. Ghosh, and S. Devadas. "Boolean Satisfiability and Equivalence Checking Using General Binary Decision Diagrams." *Proceedings of the International Conference on Computer Design: VLSI in Computers and Processors*, Boston, Massachusetts, October 1991.

Ashar, P., S. Devadas, and K. Keutzer. "Resynthesis of Combinational Logic Circuits for Robust Gate-Delay-Fault Testability." *Proceedings of the International Test Conference*, Nashville, Tennessee, October 1991.

Bahl, S.R., and J.A. del Alamo. "Elimination of Mesa-Sidewall Gate Leakage in InAlAs/InGaAs HFETs by Selective Sidewall Recessing." *Proceedings of the 18th International Symposium on Gallium Arsenide and Related Compounds*, Seattle, Washington, September 9-12, 1991.

Bers, A., and A.K. Ram. "Lower-Hybrid and Fast Alfvén Wave Current Drive—Status of Theory." *Proceedings of the I.A.E.A Technical Meeting on Fast Wave Current Drive in Reactor Scale Tokamaks (Synergy and Complementarity with LHCD and ECRH)*, Arles, France, September 23-25, 1991.

Bers, A., V. Fuchs, and C.C. Chow. "Maximizing Absorption in Ion-Cyclotron Heating of Tokamak Plasmas." *Proceedings of the 18th European Physical Society Conference on Controlled Fusion and Plasma Physics*, Berlin, Germany, June 3-7, 1991.

Blum, K.I., D.Y. Noh, A. Mak, K.W. Evans-Lutterodt, J.D. Brock, G.A. Held, and R.J. Birgeneau. "Structure and Phase Transitions of Ge(111) and Si(111) Surfaces at High Temperature." *Proceedings of the International Conference on Surface Scattering*, Bad Honnef, Germany, June 1991.

Cheng, K-T., S. Devadas, and K. Keutzer. "A Partial-Scan Approach to Robust Delay-Fault Test Generation for Sequential Circuits." *Proceedings of the International Test Conference*, Nashville, Tennessee, October 1991.

Chow, C.C., A. Bers, and A.K. Ram. "Spatio-temporal Chaos in the Nonlinear Three Wave Interaction." *Proceedings of the III Potsdam-V Kiev International Workshop on Nonlinear Processes in Physics*, Potsdam, New York, August 1-11, 1991.

- Chow, C.C., A. Bers, and A.K. Ram. "Spatio-Temporal Chaos in the Saturation of an Unstable Wavepacket." *Proceedings of the International Sherwood Fusion Conference*, Paper 2D08, Seattle, Washington, April 22-24, 1991.
- Chu, A., L. Chu, W. Macropoulos, K. Khair, R. Patel, M. Cordaro, H.J. Lezec, J. Melngailis, and L.J. Mahoney. "Performance and Applications of Novel Oscillators Utilizing Focused Ion Beam Implanted Gunn-Effect Devices." *Proceedings of the 1991 IEEE MTT-S International Microwave Symposium*, Digest 1179, Boston, Massachusetts, June 11-14, 1991.
- Covell, M., and J. Richardson. "A New, Efficient Structure for the Short-Time Fourier Transform with an Application in Code-Division Sonar Imaging." *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, ICASSP 91, Toronto, Canada, May 14-17, 1991.
- Devadas, S., K. Keutzer, and A.S. Krishnakumar. "Design Verification and Reachability Analysis Using Algebraic Manipulation." *Proceedings of the International Conference on Computer Design: VLSI in Computers and Processors*, Boston, Massachusetts, October 1991.
- Devadas, S., K. Keutzer, and S. Malik. "Delay Computation in Combinational Logic Circuits: Theory and Algorithms." *Proceedings of the International Conference on Computer-Aided Design*, Santa Clara, California, November 10-14, 1991.
- Dron, L. "An Analog Model of Early Visual Processing: Contour and Boundary Detection in the Retina." *Proceedings of the SPIE Intelligent Robots and Computer Vision X*, Boston, Massachusetts, November 14-15, 1991.
- Espy-Wilson, C.Y. "Consistency in /r/ Trajectories in American English." *Proceedings of the 12th International Congress of Phonetic Sciences*, 4:370-373, Aix en Provence, France, August 19-24, 1991.
- Fleischman, J., S. Ayasli, R.T. Shin, N.C. Chu, H.A. Yueh, and S.V. Nghiem. "Covariance of Phase and Amplitude Fluctuations of Electromagnetic Waves Propagating Through a Random Medium." *Proceedings of the Progress in Electromagnetics Research Symposium*, p. 617, Boston, Massachusetts, July 1-5, 1991.
- Floro, J.A., and C.V. Thompson. "Epitaxial Grain Growth and Orientation Metastability in Heteroepitaxial Thin Films." *Proceedings of the Materials Research Society Symposium*, 187:274, Boston, Massachusetts, December 1991.
- Frost, H.J., C.V. Thompson, and D.T. Walton. "Abnormal Grain Growth in Thin Films Due to Anisotropy of Free-Surface Energies." *Proceedings of the First International Conference on Grain Growth in Polycrystalline Materials*, Rome, Italy, 1991. Forthcoming.
- Han, H.C., J.A. Kong, S.V. Nghiem, and T. LeToan. "Analytical Solution of the Vector Radiative Transfer Equation with Rough Surface Boundary Condition." *Proceedings of the Progress in Electromagnetics Research Symposium*, p. 536, Boston, Massachusetts, July 1-5, 1991.
- Hsu, C.C., S.H. Yueh, H.C. Han, R.T. Shin, and J.A. Kong. "Radiative Transfer Modeling of Vegetation Clusters." *Proceedings of the Progress in Electromagnetics Research Symposium*, p. 609, Boston, Massachusetts, July 1-5, 1991.
- Kahn, H., and C.V. Thompson. "A Statistical Characterization of Electromigration-Induced Open Failures in 2-Level Metal Structures." *Proceedings of the Materials Research Society Symposium*, 225:15, Boston, Massachusetts, December 1991.
- Keith, D.W., and D.E. Pritchard. "Atom Optics." *Proceedings of the NATO Advanced Study Institute on New Frontiers in Quantum Electrodynamics and Quantum Optics*, Istanbul, Turkey, August 14-26, 1989.
- Kukula, J., and S. Devadas. "Finite State Machine Decomposition by Transition Pairing." *Proceedings of the International Conference on Computer-Aided Design*, Santa Clara, California, November 10-14, 1991.
- Kupfer, K., A. Bers, and A.K. Ram. "Fast Electron Transport During Lower-Hybrid Current Drive." *Proceedings of the 18th European Physical Society Conference on Controlled Fusion and Plasma Physics*, Berlin, Germany, June 3-7, 1991.
- Kupfer, K., A. Bers, and A.K. Ram. "Fast Electron Transport in Current Drive." *Proceedings of the International Sherwood Fusion Conference*, Paper 2B05, Seattle, Washington, April 22-24, 1991.
- Lee, P.A. "Small Structures: A Laboratory for Studying Strongly Interacting Systems." *Proceedings of the Taniguchi Symposium on Mesoscopic Physics*, Shima, Japan, 1991.

- Lee, H-S., and P. Yu. "CMOS Resistive Fuse Circuits." *Proceedings of the Symposium on VLSI Circuits*, pp. 109-110, Oiso, Japan, May 1991.
- Li, K., M.A. Tassoudji, R.T. Shin, and J.A. Kong. "Simulation of Electromagnetic Phenomena Using a Finite Difference-Time Domain Technique." *Proceedings of the Seventh Annual Review of Progress in Applied Computational Electromagnetics*, pp. 38-55, Naval Postgraduate School, Monterey, California, March 18-22, 1991.
- Liau, V.S., T.W. Stacey, S. Ali, and E. Schloemann. "Tunable Band-Stop Filter Based on Epitaxial Fe Film on GaAs." *Proceedings of the 1991 IEEE MTT-S International Microwave Symposium*, pp. 957-960, Boston, Massachusetts, June 11-14, 1991.
- Ma, E., L.A. Clevenger, C.V. Thompson, and K.N. Tu. "Kinetic and Thermodynamic Aspects of Phase Evolution." *Proceedings of the Materials Research Society Symposium*, 187:83, Boston, Massachusetts, December 1991.
- Ma, E., C.V. Thompson, and L.A. Clevenger. "A Calorimetric Study of the Kinetics of Al<sub>3</sub>Ni Nucleation and Growth During Reactions in Al/Ni Thin Films." *Proceedings of the Materials Research Society Symposium*, 157:455, Boston, Massachusetts, December 1991.
- Melngailis, J., P.G. Blauner, A.D. Dubner, J.S. Ro, T. Tao, and C.V. Thompson. "Focused Ion Beam Induced Deposition." *Proceedings of the Second International Symposium on Process Physics and Modeling in Semiconductor Technology*, 91-4:653, Montreal, Quebec, Canada, May 6-11, 1990.
- Melville, W.K., D.V. Arnold, E. Lamarre, J.A. Kong, R.H. Stewart, and W.C. Keller. "Direct Measurements of EM Bias at Ku and C Bands." *Proceedings of the Progress in Electromagnetics Research Symposium*, p. 168, Boston, Massachusetts, July 1-5, 1991.
- Moldoveanu, M.C., and A.K. Jordan. "Theory of Non-Dispersive Electromagnetic Pulses: the Nonlinear Dirac Equation." *Proceedings of the Progress in Electromagnetics Research Symposium*, p. 676, Boston, Massachusetts, July 1-5, 1991.
- Perkell, J.S. "Models, Theory and Data in Speech Production." *Proceedings of the 12th International Congress of Phonetic Sciences*, 1:182-191, Aix en Provence, France, August 19-24, 1991.
- Preisig, James C. "A Robust Adaptive Matched Field Processor Based Upon a Minmax Criterion." *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, ICASSP 91:1349-1352, Toronto, Canada, May 14-17, 1991.
- Price, P.J., M. Ostendorf, and S. Shattuck-Hufnagel. "Disambiguating Sentences Using Prosody." *Proceedings of the 12th International Congress of Phonetic Sciences*, 2:418-421, Aix en Provence, France, August 19-24, 1991.
- Ram, A.K., A. Bers, V. Fuchs, R.W. Harvey, and M.G. McCoy. "Current Drive by Lower Hybrid Waves in Combination with Fast Alfvén Waves." *Proceedings of the International Sherwood Fusion Conference*, Sante Fe, New Mexico, April 6-8, 1992. Forthcoming.
- Rappe, A., and J.D. Joannopoulos. "The Design of Convergent and Transferable Ab-Initio Pseudopotentials." *Proceedings of the NATO Advanced Study Institute*, Aussois, France, 1991.
- Schattenburg, M.L., and H.I. Smith. "X-ray Nanolithography—the Clearest Path to 0.1 and sub-0.1  $\mu\text{m}$  ULSI." *Proceedings of the 1991 International Symposium on MicroProcess Conference*, Kanazawa, Japan, July 15-18, 1991.
- Schattenburg, M.L., K. Li, R.T. Shin, J.A. Kong, D.B. Olster, and H.I. Smith. "Electromagnetic Calculation of Soft X-ray Diffraction from 0.1  $\mu\text{m}$ -Scale Gold Structures." *Proceedings of the 35th International Symposium on Electron, Ion, and Photon Beams*, Paper E84, Seattle, Washington, May 28-31, 1991.
- Seidel, M.N., and J.L. Wyatt, Jr. "Settling-Time Bounds for Switched-Capacitor Networks." *Proceedings of the IMACS World Congress on Computation and Applied Mathematics*, pp. 1669-1670, Dublin, Ireland, July 1991.
- Shattuck-Hufnagel, S. "Acoustic Correlates of Stress Shift." *Proceedings of the 12th International Congress of Phonetic Sciences*, 4:266-269, Aix en Provence, France, August 19-24, 1991.
- Sheen, D.M., S.M. Ali, D.E. Oates, R.S. Withers, and J.A. Kong. "Current Distribution in Superconducting Strip Transmission Lines." *Proceedings of the 1991 IEEE MTT-S International Microwave Symposium*, pp. 161-164, Boston, Massachusetts, June 11-14, 1991.

- Smith, H.I., and M.L. Schattenburg. "Proximity X-ray Nanolithography." *Proceedings of the Optical Society of America on Soft X-ray Projection Lithography*, 12:148-149, Monterey, California, April 10-12, 1991.
- Standley, D., and B. Horn. "An Object Position and Orientation IC with Embedded Imager." *Proceedings of the IEEE International Solid State Circuits Conference*, pp. 38-38, San Francisco, California, February 13-15, 1991.
- Stevens, K.N. "The Contribution of Speech Synthesis to Phonetics: Dennis Klatt's Legacy." *Proceedings of the 12th International Congress of Phonetic Sciences*, 1:28-37, Aix en Provence, France, August 19-24, 1991.
- Tassoudji, M.A., C.C. Hsu, Y.E. Yang, R.T. Shin, J.A. Kong, and G. Markey. "Computer-Aided Spectrum Engineering Procedure for Instrument Landing System (ILS) and Microwave Landing System (MLS)." *Proceedings of the Progress in Electromagnetics Research Symposium*, p. 13, Boston, Massachusetts, July 1-5, 1991.
- Thompson, C.V. "Experimental and Theoretical Aspects of Grain Growth in Thin Films." *Proceedings of the First International Conference on Grain Growth in Polycrystalline Materials*, Rome, Italy, 1991. Forthcoming.
- Thompson, C.V., J.Y. Tsao, and D.J. Srolovitz. "Evolution of Thin Film and Surface Microstructure." *Proceedings of the Materials Research Society Symposium*, 202, Boston, Massachusetts, December 1991.
- Thompson, C.V., L.A. Clevenger, R. DeAvillez, E. Ma, and H. Miura. "Kinetics and Thermodynamics of Amorphous Silicide Formation in Metal/Amorphous Multilayer Thin Films." *Proceedings of the Materials Research Society Symposium*, 187:61, Boston, Massachusetts, December 1991.
- Van Aelten, F., J. Allen, and S. Devadas. "Verification of Relations Between Synchronous Machines." *Proceedings of the International Conference on Computer-Aided Design*, Santa Clara, California, November 10-14, 1991.
- Walton, D.T., H.J. Frost, and C.V. Thompson. "Computer Simulation of Grain Growth in Thin-Film Interconnect Lines." *Proceedings of the Materials Research Society Symposium*, 225:219, Boston, Massachusetts, December 1991.
- Walton, D.T., H.J. Frost, and C.V. Thompson. "Modeling of Grain Growth in Thin Film Strips." *Proceedings of the First International Conference on Grain Growth in Polycrystalline Materials*, Rome, Italy, 1991. Forthcoming.
- Wilde, L.F., and C.B. Huang. "Acoustic Properties at Fricative-Vowel Boundaries in American English." *Proceedings of the 12th International Congress of Phonetic Sciences*, 5:398-401, Aix en Provence, France, August 19-24, 1991.
- Wornell, G.W. "Communication Over Fractal Channels." *Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*, ICASSP 91:1945-1948, Toronto, Canada, May 14-17, 1991.
- Yang, Y.E., J.A. Kong, R.T. Shin, B.F. Burke, E.M. Geyer, R.P. Arnold, and E.A. Spitzer. "Spectrum Management for Precision Landing Systems: Instrument Landing Systems (ILS) and Microwave Landing System (MLS)." *Proceedings of the Progress in Electromagnetics Research Symposium*, p. 8, Boston, Massachusetts, July 1-5, 1991.
- Yueh, H.A., J.A. Kong, and R.T. Shin. "External Calibration of Polarimetric Radars Using Point and Distributed Targets." *Proceedings of the Third Airborne Synthetic Aperture Radar (AIRSAR) Workshop*, Jet Propulsion Laboratory, Pasadena, California, May 23-24, 1991.

## A.2 Journal Articles

### A.2.1 Published Journal Articles

- Acioli, L.H., M. Ulman, E.P. Ippen, J.G. Fujimoto, H. Kong, B.S. Chen, and M. Cronin-Golomb. "Femtosecond Temporal Encoding in Barium Titanate." *Opt. Lett.* 16(24): 1984-1986 (1991).
- Alerhand, O.L., A.N. Berker, J.D. Joannopoulos, D. Vanderbilt, R.J. Hamers, and J.E. Demuth. "Finite-Temperature Phase Diagram of Vicinal Si(100) Surfaces: Alerhand et al. Reply." *Phys. Rev. Lett.* 66(7): 962 (1991).
- Alerhand, O., J. Wang, J.D. Joannopoulos, E. Kaxiras, and R. Becker. "Adsorption of As on Stepped Si(100): Resolution of the Sublattice Dilemma." *Phys. Rev. Rapid Comm. B* 44: 6534 (1991).
- Alerhand, O., J. Wang, J.D. Joannopoulos, and E. Kaxiras. "Growth of As Overlayers on Vicinal Si(100)." *J. Vac. Sci. Tech. B* 9: 2423 (1991).
- Anderson, E.H., V. Boegli, M.L. Schattenburg, D.P. Kern, and H.I. Smith. "Metrology of Electron Beam Lithography Systems Using Holographically Produced Reference Samples." *J. Vac. Sci. Technol. B* 9: 3606-3611 (1991).
- Bace, M.M., and J.S. Lim. "A Receiver-Compatible System for Channel Noise Reduction." *IEEE Trans. Circuit Syst. Video Tech.* 1(1): 125-135 (1991).
- Bagnato, V., and D. Kleppner. "Bose-Einstein Condensation in Low-Dimensional Traps." *Phys. Rev. A* 44(11): 7439-7441 (1991).
- Bagwell, P.F., and A. Kumar. "Evolution of the Quantized Ballistic Conductance with Increasing Disorder in Narrow Wire Arrays." *Bull. Am. Phys. Soc.* 36: 359 (1991).
- Bahl, S.R., W.J. Azzam, and J.A. del Alamo. "Orientation Dependence of Mismatched  $\text{In}_x\text{Al}_{1-x}\text{As}/\text{In}_{0.53}\text{Ga}_{0.47}\text{As}$  HFETs." *J. Crystal Growth* 111(1-4): 479-483 (1991).
- Bahl, S.R., W.J. Azzam, and J.A. del Alamo. "Strained-Insulator  $\text{In}_x\text{Al}_{1-x}\text{As}/\text{n}^+ - \text{In}_{0.53}\text{Ga}_{0.47}\text{As}$  Heterostructure Field-Effect Transistors." *IEEE Trans. Electron. Devices* 38(9): 1986-1992 (1991).
- Basu, S. "Possibility of X-Ray Detection Using Quantum Wells." *IEEE J. Quantum Electron.* 27(9): 2116-2121 (1991).
- Beckmann, P.E., and B.R. Musicus. "Fault-Tolerant Round-Robin A/D Converter System." *IEEE Trans. Circuits Syst.* 38(12): 1420-1429 (1991).
- Bergman, K., and H.A. Haus. "Squeezing in Fibers with Optical Pulses." *Opt. Lett.* 16(9): 663-665 (1991).
- Berker, A.N. "Absence of Temperature-Driven First-Order Phase Transitions in Systems with Random Bonds." *J. Appl. Phys.* 70(10): 5941-5945 (1991).
- Bers, A., and A.K. Ram. "Signature of Absolute and Convective Instabilities with Application to Space Plasmas." *Bull. Am. Phys. Soc.* 36: 2462 (1991).
- Besing, J.M., C.M. Reed, and K.W. Grant. "Tactical Presentation of Low-Bandwidth Envelope Signals: Benefits to Speechreading." *ASHA* 33: 212 (1991).
- Bossi, D.E., W.D. Goodhue, L.M. Johnson, and R.H. Rediker. "Reduced-Confinement GaAlAs Tapered Waveguide Antennas for Enhanced Far-Field Beam Directionality." *IEEE J. Quantum Electron.* 27(3): 687-695 (1991).
- Boyce, S.E., R.A. Krakow, and F. Bell-Berti. "Phonological Underspecification and Speech Motor Organisation." *Phonology* 8: 219-236 (1991).
- Braida, L.D. "Crossmodal Integration in the Identification of Consonant Segments." *Quart. J. Exper. Psych.* 43A(3): 647-677 (1991).
- Braud, J.P., and P.L. Hagelstein. "Whispering-Gallery Laser Resonators. Part I: Diffraction of Whispering-Gallery Modes." *IEEE J. Quantum Electron.* 27(4): 1069-1077 (1991).
- Chan, C.H., S.H. Lou, L. Tsang, and J.A. Kong. "Electromagnetic Scattering of Waves by Random Rough Surface: a Finite-Difference Time-Domain Approach." *Microwave Opt. Tech. Lett.* 4(9): 355-359 (1991).
- Chiu, T.H., T.Y. Kuo, and C.G. Fonstad. "Growth and Metalization of AlGaAs/GaAs Carbon-Doped HBT's Using Trimethylamine Alane by CBE." *IEEE Electron. Dev. Lett.* EDL-12: 287-289 (1991).

- Chow, C.C., A. Bers, and A.K. Ram. "Spatio-temporal Chaos in the Three Wave Interaction." *Bull. Am. Phys. Soc.* 36: 2407 (1991).
- Chu, W., H.I. Smith, and M.L. Schattenburg. "Replication of 50-nm-linewidth Device Patterns Using Proximity X-ray Lithography at Large Gaps." *Appl. Phys. Lett.* 59(13): 1641-1643 (1991).
- Conde, M.E., and G. Bekefi. "Experimental Study of a 33.3-GHz Free-Electron-Laser Amplifier with a Reversed Axial Guide Magnetic Field." *Phys. Rev. Lett.* 67(22): 3082-3085 (1991).
- Coppi, B, and F. Pegoraro. "Symmetries and Global Transport Equations." *Phys. Fluids B* 3(9): 2582-2590 (1991).
- Corcoran, C.J., and R.H. Rediker. "Operation of Five Individual Diode Lasers as a Coherent Ensemble by Fiber Coupling into an External Cavity." *Appl. Phys. Lett.* 59(7): 759-761 (1991).
- Devadas, S. "Optimizing Interacting Finite State Machines Using Sequential Don't Cares." *IEEE Trans. Comput.-Aided Des.* 10(12): 1473-1484 (1991).
- Devadas, S., and A.R. Newton. "Corrections to 'Exact Algorithms for Output Encoding, State Assignment, and Four-Level Boolean Minimization'." *IEEE Trans. Comput.-Aided Des. Integrated Circuits Syst.* 10(11): 1469 (1991).
- DiRienzo, A.C., G. Bekefi, C. Chen, and J.S. Wurtele. "Experimental and Theoretical Studies of a 35 GHz Cyclotron Autoresonance Maser Amplifier." *Phys. Fluids B* 3(7): 1755-1765 (1991).
- Dubner, A.D., A. Wagner, J. Melngailis, and C.V. Thompson. "The Role of the Ion/Solid Interaction in Ion Beam Induced Deposition of Gold." *J. Appl. Phys.* 70: 665 (1991).
- Durlach, N. "Auditory Localization in Teleoperator and Virtual Environment Systems: Ideas, Issues, and Problems." *Perception* 20: 543-554 (1991).
- Ehrlich, D.J., and J. Melngailis. "Fast Room-Temperature Growth of SiO<sub>2</sub> Films by Molecular-Layer Dosing." *Appl. Phys. Lett.* 58: 2675-2677 (1991).
- Eugster, C.C., T.P.E. Broekaert, J.A. del Alamo, and C.G. Fonstad. "An InAlAs/InAs MODFET." *IEEE Electron. Dev. Lett.* EDL-12: 707-709 (1991).
- Feng, S., and P.A. Lee. "Mesoscopic Conductance and Correlations in Laser Speckle Patterns." *Science* 251: 633-639 (1991).
- Freyman, R.L., and P.M. Zurek. "Influence of Onset Cues in Lateralization." *J. Acoust. Soc. Am.* 89: 1995 (1991).
- Gabetta, G., D. Huang, J. Jacobson, M. Ramaswamy, E.P. Ippen, and J.G. Fujimoto. "Femtosecond Pulse Generation in Ti:Al<sub>2</sub>O<sub>3</sub> Using a Microdot Mirror Mode Locker." *Opt. Lett.* 16(22): 1756-1758 (1991).
- Gels, M.W., H.I. Smith, A. Argoitia, J. Angus, G.H.M. Ma, J.T. Glass, J. Butler, C.J. Robinson, and R. Pryor. "Large-Area Mosaic Diamond Films Approaching Single-Crystal Quality." *Appl. Phys. Lett.* 58: 2485 (1991).
- Ghosh, A., S. Devadas, and A.R. Newton. "Test Generation and Verification for Highly Sequential Circuits." *IEEE Trans. Comput.-Aided Des.* 11(5): 652-667 (1991).
- Goossen, K.W., J.E. Cunningham, T.Y. Kuo, W.Y. Jan, and C.G. Fonstad. "Monolayer d-doped Heterojunction Bipolar Transistor Characteristics from 10 to 350 K." *Appl. Phys. Lett.* 59: 682-684 (1991).
- Gould, P.L., P.J. Martin, G.A. Ruff, R.E. Stoner, J-L. Picque, and D.E. Pritchard. "Momentum Transfer to Atoms by a Standing Light Wave; Transition from Diffraction to Diffusion." *Phys. Rev. A* 43: 585 (1991).
- Grant, K.W., and L.D. Braida. "Evaluating the Articulation Index for Auditory-Visual Input." *J. Acoust. Soc. Am.* 89(6): 2952-2960 (1991).
- Grant, K.W., L.D. Braida, and R.J. Renn. "Single-band Envelope Cues as an Aid to Speech-reading." *Quart. J. Exper. Psych.* 43A(3): 621-645 (1991).
- Green, T.J., Jr., J.H. Shapiro, and M.M. Menon. "Target Detection Performance Using 3-D Laser Radar Images." *SPIE Proc.* 1471: 328-341 (1991).
- Griffith, M., G. Langston, M. Heflin, S. Conner, and B. Burke. "The Fourth MIT-Green Bank 5 GHz Survey." *Astrophys. J., Suppl. Ser.* 75: 801-833 (1991).
- Habashy, T.M., S.M. Ali, J.A. Kong, and M.D. Grossi. "Dyadic Green's Functions in a Planar

- Stratified, Arbitrarily Magnetized Linear Plasma." *Radio Sci.* 26(3): 701-716 (1991).
- Hartney, M.A., D.C. Shaver, M.I. Shepard, J. Melngailis, V. Medvedev, and W.P. Robinson. "Surface Imaging of Focused Ion Beam Exposed Resists." *J. Vac. Sci. Technol. B* 9: 3432 (1991).
- Hartney, M.A., D.C. Shaver, M.I. Shepard, J.S. Huh, and J. Melngailis. "Silylation of Focused Ion Beam Exposed Resists." *Appl. Phys. Lett.* 59: 485-487 (1991).
- Haus, H.A. "Quantum Noise in a Solitonlike Repeater System." *J. Opt. Soc. Am. B* 8(5): 1122-1126 (1991).
- Haus, H.A., and E.P. Ippen. "Self-starting of Passively Mode-locked Lasers." *Opt. Lett.* 16(17): 1331-1333 (1991).
- Haus, H.A., and W. Huang. "Coupled-Mode Theory." *IEEE Proc.* 79(10): 1505-1518 (1991).
- Haus, H.A., J.G. Fujimoto, and E.P. Ippen. "Structures for Additive Pulse Mode Locking." *J. Opt. Soc. Am. B* 8(10): 2068-2076 (1991).
- Haus, H.A., K. Bergman, and Y. Lai. "Fiber Gyro with Squeezed Radiation." *J. Opt. Soc. Am. B* 8(9): 1952-1957 (1991).
- Haus, H.A., U. Keller, and W.H. Knox. "Theory of Coupled-Cavity Mode Locking with a Resonant Nonlinearity." *J. Opt. Soc. Am. B* 8(6): 1252-1258 (1991).
- Haus, H.A., and Y. Lai. "Narrow-Band Distributed Feedback Reflector Design." *J. Lightwave Tech.* 9(6): 754-760 (1991).
- Heflin, M.B., M.V. Gorenstein, C.R. Lawrence, and B.F. Burke. "First- and Second-EPOCH VLBI Observations of the Gravitational Lens System 2016+112." *Astrophys. J.* 378: 519-536 (1991).
- Ho, S-T., P. Kumar, and J.H. Shapiro. "Quantum Theory of Nondegenerate Multiwave Mixing. II. Adiabatic Elimination via Slowly Varying Amplitude Approximation." *Phys. Rev. A* 43(7): 3939-3948 (1991).
- Ho, S-T., P. Kumar, and J.H. Shapiro. "Quantum Theory of Nondegenerate Multiwave Mixing. III. Application to Single-Beam Squeezed-State Generation." *J. Opt. Soc. Am. B* 8(1): 37-57 (1991).
- Ho, S-T., N.C. Wong, and J.H. Shapiro. "Single-Beam Squeezed-State Generation in Sodium Vapor and its Self-Focusing Limitations." *Opt. Lett.* 16(11): 840-842 (1991).
- Hoston, W., and A.N. Berker. "Multicritical Phase Diagrams of the Blume-Emery-Griffiths Model with Repulsive Biquadratic Coupling." *Phys. Rev. Lett.* 67(8): 1027-1030 (1991).
- Hoston, W., and A.N. Berker. "Dimensionality Effects on the Multicritical Phase Diagrams of the Blume-Emery-Griffiths Model with Repulsive Biquadratic Coupling: Mean-field and Renormalization-group Studies." *J. Appl. Phys.* 70(10): 6101-6103 (1991).
- Hu, Q., and S. Feng. "Feasibility of Far-Infrared Lasers Using Multiple Semiconductor Quantum Wells." *Appl. Phys. Lett.* 59(23): 2923-2925 (1991).
- Hu, Q., C.A. Mears, and P.L. Richards. "Millimeter Wave Superconducting Receivers." *IEEE MTT-S Digest* 409 (1991).
- Huang, D., E.A. Swanson, C.P. Lin, J.S. Schuman, W.G. Stinson, W. Chang, M.R. Hee, T. Flotte, K. Gregory, C.A. Puliafito, J.G. Fujimoto. "Optical Coherence Tomography." *Sci.* 254: 1178-1181 (1991).
- Huang, D., J. Wang, C.P. Lin, C.A. Puliafito, and J.G. Fujimoto. "Micron-Resolution Ranging of Cornea Anterior Chamber by Optical Reflectometry." *Lasers in Surgery and Medicine* 11: 419-425 (1991).
- Huh, J.S., M.I. Shepard, and J. Melngailis. "Focused Ion Beam Lithography." *J. Vac. Sci. Technol. B* 9: 173 (1991).
- Hultgren, C.T., and E.P. Ippen. "Ultrafast Refractive Index Dynamics in AlGaAs Diode Laser Amplifiers." *Appl. Phys. Lett.* 59(6): 635-637 (1991).
- Ismail, K., P.F. Bagwell, T.P. Orlando, D.A. Antoniadis, and H.I. Smith. "Quantum Phenomena in Field-Effect-Controlled Semiconductor Nanostructures." *IEEE Proc.* 79: 1106-1116 (1991).
- Ismail, K., F. Legoues, N.H. Karam, J. Carter, and H.I. Smith. "High-Quality GaAs on Sawtooth-Patterned Si Substrates." *Appl. Phys. Lett.* 59(19): 2418-2420 (1991).
- Ismail, K., M. Burkhardt, H.I. Smith, N.H. Karam, and P.A. Sekula-Moise. "Patterning and Characterization of Large-Area Quantum Wire

- Arrays." *Appl. Phys. Lett.* 58(14): 1539-1541 (1991).
- Iu, C-h., G.R. Welch, M.M. Kash, D. Kleppner, D. Delande, and J.C. Gay. "Diamagnetic Rydberg Atom: Confrontation of Calculated and Observed Spectra." *Phys. Rev. Lett.* 66(2): 145-148 (1991).
- Jerby, E. "Traveling-Wave Free-Electron Laser." *Phys. Rev. A* 44(1): 703-715 (1991).
- Jerby, E., G. Bekefi, and J.S. Wurtele. "Observations of Periodic Intensity Bursts During the Start-up Phase of a Free-Electron-Laser Oscillator." *Phys. Rev. Lett.* 66(16): 2068-2071 (1991).
- Jerby, E., G. Bekefi, and J.S. Wurtele. "Experimental and Theoretical Study of Periodic Intensity Bursts in the Start-Up Phase of a Free-Electron Laser Oscillator." *IEEE J. Quantum Electron.* 27(12): 2512-2521 (1991).
- Jerby, E., G. Bekefi, and J.S. Wurtele. "Observations of Periodic Intensity Bursts from a Free Electron Laser Oscillator." *Nucl. Instrum. Methods Phys. Res.* A304: 107-110 (1991).
- Johnson, A.D., K.J. Maynard, S.P. Daley, Q.Y. Yang, and S.T. Ceyer. "Hydrogen Embedded in Ni: Production by Incident Atomic Hydrogen and Detection by High Resolution Electron Energy Loss." *Phys. Rev. Lett.* 67: 927 (1991).
- Kahn, H., and C.V. Thompson. "The Effect of Applied Mechanical Stress on the Electromigration Failure Times of Aluminum Interconnects." *Appl. Phys. Lett.* 56: 1308 (1991).
- Karam, N.H., A. Mastrovita, V. Haven, K. Ismail, S. Pennycock, and H.I. Smith. "Patterning and Overgrowth of Nanostructure Quantum Well Wire Arrays by LP-MOVPE." *J. Crystal Growth* 107: 591-597 (1991).
- Keane, D.T., P.A. Bancel, G.L. Jordan-Sweet, G.A. Held, A. Mak, and R.J. Birgeneau. "Evidence for Two-Step Disordering of the Au(110) 1 x 2 Reconstructed Surface." *Surf. Sci.* 250: 8 (1991).
- Keith, D.W., C.R. Ekstrom, Q.A. Turchette, and D.E. Pritchard. "An Interferometer for Atoms." *Phys. Rev. Lett.* 66(21): 2693-2696 (1991).
- Keith, D.W., and M.J. Rooks. "Free-standing Gratings and Lenses for Atom Optics." *J. Vac. Sci. Technol. B* 9: 2846 (1991).
- Kinaret, J.M., and P.A. Lee. "Conductance of a Disordered Narrow Wire in a Strong Magnetic Field." *Phys. Rev. B* 43(5): 3847-3855 (1991).
- Kleppner, D., C-H. Iu, and G.R. Welch. "Positive Energy Spectroscopy of the Diamagnetic Lithium System." *Comments At. Mol. Phys.* 25(4-6): 301-307 (1991).
- Ku, Y-C., L-P. Ng, R. Carpenter, K. Lu, H.I. Smith, L.E. Haas, and I. Plotnik. "In situ Stress Monitoring and Deposition of Zero-Stress W for X-ray Masks." *J. Vac. Sci. Technol. B* 9(6): 3297-3300 (1991).
- Kumar, A., and P.F. Bagwell. "Resonant Tunneling in a Quasi-One-Dimensional Wire: Influence of Evanescent Modes." *Phys. Rev. B* 43: 9012-9020 (1991).
- Kumar, A., and P.F. Bagwell. "Evolution of the Quantized Ballistic Conductance with Increasing Disorder in Narrow Wire Arrays." *J. Phys. Rev. B* 44: 1747-1753 (1991).
- Kuo, T.Y., J.E. Cunningham, K.W. Goosen, A. Ourmazd, W. Jan, C.G. Fonstad, and F. Ren. "Planarized Be  $\delta$ -doped Heterostructure Bipolar Transistor Fabricated Using Doping Selective Contact and Selective Hole Epitaxy." *J. Appl. Phys.* 30: L262-L265 (1991).
- Kupfer, K., and A. Bers. "Fast Electron Transport in Lower-Hybrid Current Drive." *Phys. Fluids B* 3(10): 2783-2795 (1991).
- Lai, Y., H.A. Haus, and Y. Yamamoto. "Squeezed Vacuum from Amplitude Squeezed States." *Opt. Lett.* 16(19): 1517-1519 (1991).
- Lane, H., J. Perkell, M. Svirsky, and J. Webster. "Changes in Speech Breathing Following Cochlear Implant in Postlingually Deafened Adults." *J. Speech Hear. Res.* 34: 526-533 (1991).
- Lau, S.D., J.P. Donnelly, C.A. Wang, R.B. Goodman, and R.H. Rediker. "Optical Phase Difference Measurement and Correction Using AlGaAs Integrated Guided-Wave Components." *IEEE Photonics Tech. Lett.* 3(10): 902-904 (1991).
- Lee, P.A., and N. Nagaosa. "Relaxation of Nuclear Spin Due to Long Range Orbital Currents." *Phys. Rev. B* 43: 1223 (1991).
- Lezec, H.J., C.R. Musil, J. Melngailis, L.J. Mahoney, and J. Woodhouse. "Dose-Rate Effects in Focused-Ion-Beam Implantation of

- Si into GaAs." *J. Vac. Sci. Technol. B* 9: 2709 (1991).
- Liu, C.T., D.C. Tsui, M. Shayegan, K. Ismail, D.A. Antoniadis, and H.I. Smith. "Guiding-Center-Drift Resonance of Two-Dimensional Electrons in a Grid-Gate Superlattice Potential." *Appl. Phys. Lett.* 58: 2945-2947 (1991).
- Longworth, H.P., and C.V. Thompson. "Abnormal Grain Growth in Aluminum Alloy Thin Films." *J. Appl. Phys.* 69: 3929 (1991).
- Lumsdaine, A., J.L. Wyatt, Jr., and I.M. Elfadel. "Nonlinear Analog Networks for Image Smoothing and Segmentation." *J. VLSI Signal Process.* 3: 53-68 (1991).
- Ma, E., and C.V. Thompson. "Nucleation and Growth During Reactions in Multilayer Al/Ni Films: The Early Stages of Al<sub>3</sub>Ni Formation." *J. Appl. Phys.* 69: 2211 (1991).
- Mak, A., K.W. Evans-Lutterodt, K. Blum, D.Y. Noh, J.D. Brock, G.A. Held, and R.J. Birgeneau. "Synchrotron X-ray Diffraction Study of the Disordering of the Ge(111) Surface at High Temperatures." *Phys. Rev. Lett.* 66(15): 2002-2005 (1991).
- McCann, P.J., and C.G. Fonstad. "Auger Electron Spectroscopic Analysis of Barium Fluoride Surfaces Exposed to Selenium Vapor." *J. Electron. Mat.* 20(11): 915-920 (1991).
- McCann, P.J., and C.G. Fonstad. "Liquid Phase Epitaxial Growth of PbSe on (111) and (100) BaF<sub>2</sub>." *J. Cryst. Growth* 114: 687-692 (1991).
- McEuen, P.L., E.P. Foxman, U. Meirav, M.A. Kastner, Y. Meir, N.S. Wingreen, and S.J. Wind. "Transport Spectroscopy of a Coulomb Island in the Quantum Hall Regime." *Phys. Rev. Lett.* 66: 1926 (1991).
- Meade, R.D., K.D. Brommer, A.M. Rappe, and J.D. Joannopoulos. "Electromagnetic Bloch Waves at the Surface of a Photonic Crystal." *Phys. Rev. B* 44(19): 10961-10964 (1991).
- Meade, R.D., K.D. Brommer, A.M. Rappe, and J.D. Joannopoulos. "Photonic Bound States in Periodic Dielectric Materials." *Phys. Rev. B* 44(24): 13772-13774 (1991).
- Mears, C.A., Q. Hu, P.L. Richards, A. Worsham, and D.E. Prober. "Quantum Limited Quasiparticle Mixers at 100 GHz." *IEEE Trans. Magn. MAG-27*: 3363 (1991).
- Mears, C.A., Q. Hu, and P.L. Richards. "The Effect of the Quantum Susceptance on the Gain of Superconducting Quasiparticle Mixers." *IEEE Trans. Magn. MAG-27*: 3384 (1991).
- Mecozzi, A., J.D. Moores, H.A. Haus, and Y. Lai. "Soliton Transmission Control." *Opt. Lett.* 16(23): 1841-1843 (1991).
- Meir, Y., N.S. Wingreen, and P.A. Lee. "Transport Through a Strongly Interacting Electron System: Theory of Periodic Conductance Oscillations." *Phys. Rev. Lett.* 66(23): 3048-3051 (1991).
- Melngailis, J. "Focused Ion Beam Induced Deposition—A Review." *SPIE Proc.* 1465 (1991).
- Mentle, R.E., and J.H. Shapiro. "Track-While-Image in the Presence of Background." *SPIE Proc.* 1471: 342-353 (1991).
- Migliuolo, S. "Collisional Viscosity and Finite Ion Larmor Radius Effects on Resistive Internal Kink Modes." *Nucl. Fusion* 31: 365 (1991).
- Migliuolo, S., F. Pegoraro, and F. Porcelli. "Stabilization of Collisional Drift-tearing Modes at the Breakdown of the Constant-Psi Approximation." *Phys. Fluids B* 3(6): 1338-1345 (1991).
- Miura, H., E. Ma, and C.V. Thompson. "Initial Sequence and Kinetics of Silicide Formation in the Cobalt/Amorphous-Silicon Multilayer Thin Films." *J. Appl. Phys.* 70: 4287 (1991).
- Moel, A., W. Chu, K. Early, Y-C. Ku, E.E. Moon, F. Tsai, H.I. Smith, M.L. Schattenburg, C.D. Fung, F.W. Griffith, and L.E. Haas. "Fabrication and Characterization of High-Flatness Mesa-Etched Silicon Nitride X-ray Masks." *J. Vac. Sci. Technol. B* 9(6): 3287-3291 (1991).
- Moores, J.D., K. Bergman, H.A. Haus, and E.P. Ippen. "Optical Switching Using Fiber Ring Reflectors." *J. Opt. Soc. Am. B* 8(3): 594-601 (1991).
- Moores, J.D., K. Bergman, H.A. Haus, and E.P. Ippen. "Demonstration of Optical Switching by Means of Solitary Wave Collisions in a Fiber Ring Reflector." *Opt. Lett.* 16(3): 138-140 (1991).
- Murguia, J.E., M.I. Shepard, J. Melngailis, A.L. Lattes, and S.C. Munroe. "Increase in Silicon CCD Speed with Focused Ion Beam Implanted Channels." *J. Vac. Sci. Technol. B* 9: 2714 (1991).

- Nabors, K., and J. White. "FastCap: A Multipole Accelerated 3-D Capacitance Extraction Program." *IEEE Trans. Comput.-Aided Des. Integrated Circuits Syst.* 10(11): 1447-1459 (1991).
- Nagaosa, N., and P.A. Lee. "Experimental Consequences of the Uniform Resonating Valence Bond State." *Phys. Rev. B* 43: 1233 (1991).
- Nahum, M., Q. Hu, P.L. Richards, N. Newman, and S.A. Sachtjen. "Fabrication and Measurement of a High  $T_c$  Superconducting Microbolometer." *IEEE Trans. Magn.* MAG-27: 3081 (1991).
- Needels, M., J.D. Joannopoulos, Y. Bar-Yam, S.T. Pantelides, and R.H. Wolfe. "The Enchanting Properties of Oxygen Atoms in Silicon." *Proceedings, Mat. Res. Soc. Symp.* 209: 103-117 (1991).
- Needles, M., J.D. Joannopoulos, Y. Bar-Yam, and S.T. Pantelides. "Oxygen Complexes in Silicon." *Phys. Rev. B* 43(5): 4208-4215 (1991).
- Netz, R.R., and A.N. Berker. "Hard-spin Mean-field Theory: Formulation for Ising, XY, and Other Models." *J. Appl. Phys.* 70(10): 6074-6076 (1991).
- Netz, R.R., and A.N. Berker. "Monte Carlo Mean-Field Theory and Frustrated Systems in Two and Three Dimensions." *Phys. Rev. Lett.* 66(3): 377-380 (1991).
- Netz, R.R., and A.N. Berker. "Monte Carlo Mean-Field Theory and Frustrated Systems in Two and Three Dimensions: Netz and Berker Reply." *Phys. Rev. Lett.* 67(13): 1808 (1991).
- Nghiem, S.V., M.E. Veysoglu, J.A. Kong, R.T. Shin, K. O'Neill, and A.W. Lohanick. "Polarimetric Passive Remote Sensing of a Periodic Soil Surface: Microwave Measurements and Analysis." *J. Electro. Waves Appl.* 5(9): 997-1005 (1991).
- Noh, D.Y., K.I. Blum, M.J. Ramstad, and R.J. Birgeneau. "Long-range Coherence and Macroscopic Phase Separation of Steps on Vicinal Si(111)." *Phys. Rev. B* 44(19): 10969-10972 (1991).
- Noh, D.Y., K.I. Blum, M.J. Ramstad, and R.J. Birgeneau. "Long Range Separation of Steps on Vicinal Si(111)." *Phys. Rev. B* 44: 10969 (1991).
- Oates, D.E., C. Anderson, D.M. Sheen, and S.M. Ali. "Stripline Resonator Measurements of  $Z_s VSH_{if}$  in  $YBa_2Cu_3O_{7-x}$  Thin Films." *IEEE Trans. Microwave Theory Tech.* 39: 1522-1529 (1991).
- Pang, X.D., H.Z. Tan, and N.I. Durlach. "Manual Discrimination of Force Using Active Finger Motion." *Percept. Psychophys.* 49(6): 531-540 (1991).
- Park, S.L., P.F. Bagwell, A. Yen, D.A. Antoniadis, H.I. Smith, T.P. Orlando, and M.A. Kastner. "Magnetotransport in Multiple Narrow Si Inversion Channels Opened Electrostatically into a Two-Dimensional Electron Gas." *Bull. Am. Phys. Soc.* 36: 360 (1991).
- Peake, W.T., and J.J. Rosowski. "Impedance Matching, Optimum Velocity, and Ideal Middle Ears." *Hear. Res.* 53: 1-6 (1991).
- Peng, L-H., T.P.E. Broekaert, W-Y. Choi, C.G. Fonstad, and V. Jones. "Defect Activated Infrared Multiphonon Excitation in Iron-doped Semi-insulating Indium Phosphide." *Appl. Phys. Lett.* 59: 564-566 (1991).
- Perkell, J.S., E.B. Holmberg, and R.E. Hillman. "A System for Signal Processing and Data Extraction from Aerodynamic, Acoustic and Electroglottographic Signals in the Study of Voice Production." *J. Acoust. Soc. Am.* 89(4): 1777-1781 (1991).
- Perkell, J.S., E.B. Holmberg, and R.E. Hillman. "A System for Signal Processing and Data Extraction from Aerodynamic, Acoustic, and Electroglottographic Signals in the Study of Voice Production." *J. Acoust. Soc. Am.* 89(4): 1777-1781 (1991).
- Power, M.H., and L.D. Braid. "A Physical Measure of Consistency Among Speech Parameter Vectors: Application to Speech Intelligibility Determination." *J. Acoust. Soc. Am.* 90: 2327 (1991).
- Prentiss, M., N. Bigelow, and S. Shahriar. "Forces on Three Level Atoms Including Coherent Population Trapping." *Opt. Lett.* 16: 1695 (1991).
- Price, P.J., M. Ostendorf, S. Shattuck-Hufnagel, and C. Fong. "The Use of Prosody in Syntactic Disambiguation." *J. Acoust. Soc. Am.* 90: 1956-1970 (1991).
- Pritchard, D.E. "Atom Interferometers." *Opt. Photonics News* (December 1991).

- Ram, A.K., and A. Bers. "Propagation and Damping of Mode Converted Ion-Bernstein Waves in Toroidal Plasmas." *Phys. Fluids B* 3(4): 1059-1069 (1991).
- Ram, A.K., and A. Bers. "Space-Time Propagation of Electromagnetic Instabilities Across the Magnetic Field in Auroral Regions." *EOS Trans. Am. Geophys. Union* 72 (1991).
- Ram, A.K., A. Bers, V. Fuchs, L. Vacca, and M. Shoucri. "Current Drive by Fast Alfvén Waves and in Combination with Lower Hybrid Waves." *Bull. Am. Phys. Soc.* 36: 2339 (1991).
- Rankovic, C.M. "An Application of the Articulation Index to Hearing Aid Fitting." *J. Speech Hear. Res.* 34: 391-402 (1991).
- Rankovic, C.M., and P.M. Zurek. "Evaluation of Prescriptive Fitting Procedures Using the AI Model." *ASHA* 33: 164 (1991).
- Rankovic, C.M., P.M. Zurek, and R.L. Freyman. "Potential Benefits of Adaptive Frequency-Gain Characteristics for Speech Reception in Noise for Hearing-Impaired Individuals." *J. Acoust. Soc. Am.* 90: 2319 (1991).
- Rediker, R.H., K.A. Rauschenbach, and R.P. Schloss. "Operation of a Coherent Ensemble of Five Diode Lasers in an External Cavity." *IEEE J. Quantum Electron.* 27(6): 1582-1593 (1991).
- Reed, C.M., L.A. Delhorne, N.I. Durlach, and S.D. Fischer. "A Study of the Tactual and Visual Reception of Fingerspelling." *J. Speech Hear. Res.* 33: 786-797 (1991).
- Reed, C.M., M.H. Power, N.I. Durlach, L.D. Braid, K.K. Foss, J.A. Reid, and S.R. Dubois. "Development and Testing of Artificial Low-Frequency Speech Codes." *J. Rehabil. Res. Dev.* 28(3): 67-82 (1991).
- Rosowski, J.J. "The Effects of External-and Middle-Ear Filtering on Auditory Threshold and Noise-Induced Hearing Loss." *J. Acoust. Soc. Am.* 90(1): 124-135 (1991).
- Rosowski, J.J., and A. Graybeal. "What Did Morganucodon Hear?" *Zool. J. Linnean Soc.* 101: 131-168 (1991).
- Sarpeshkar, R, J.L. Wyatt, Jr., M.C. Lu, and P.D. Gerber. "Mismatch Sensitivity of a Simultaneously Latched CMOS Sense Amplifier." *IEEE J. Solid-State Circuits* 26(10): 1413-1422 (1991).
- Schattenburg, M.L., C.R. Canizares, D. Dewey, K.A. Flanagan, M.A. Hamnett, A.M. Levine, K.S.K. Lum, R. Manikkalingam, T.H. Markert, and H.I. Smith. "Transmission Grating Spectroscopy and the Advanced X-ray Astrophysics Facility." *Opt. Eng.* 30: 1590-1600 (1991).
- Schattenburg, M.L., K. Li, R.T. Shin, J.A. Kong, and H.I. Smith. "Electromagnetic Calculation of Soft-X-ray Diffraction from 0.1  $\mu\text{m}$  Gold Structures." *J. Vac. Sci. Technol. B* 9: 3232-3236 (1991).
- Schoenlein, R.W., J.G. Fujimoto, G.L. Eesley, and T.W. Capehart. "Femtosecond Relaxation Dynamics of Image-Potential States." *Phys. Rev. B* 43(6): 4688-4698 (1991).
- Segal, M., E. Weinstein, and B.R. Musicus. "Estimate-Maximize Algorithms for Multi-channel Time Delay and Signal Estimation." *IEEE Trans. Signal Process.* 39(1): 1-16 (1991).
- Shapiro, J.H., and S.R. Shepard. "Quantum Phase Measurement: A System-Theory Perspective." *Phys. Rev. A* 43(7): 3795-3818 (1991).
- Sheen, D.M., S.M. Ali, D.E. Oates, R.S. Withers, and J.A. Kong. "Current Distribution, Resistance, and Inductance for Superconducting Strip Transmission Lines." *IEEE Trans. Appl. Superconduc.* 1(2): 108-115 (1991).
- Shirasaki, M., and H.A. Haus. "Noise Reduction in Quantum Nondemolition Measurement with a Nonlinear Mach-Zehnder Interferometer Using Squeezed Vacuum." *J. Opt. Soc. Am. B* 8(3): 681-684 (1991).
- Siegel, P.H., J.E. Oswald, R.G. Dengler, D.M. Sheen, and S.M. Ali. "Measured and Computed Performance of a Microstrip Filter Composed of Semi-insulating GaAs on a Fused Quartz Substrate." *IEEE Microwave Guided Wave Lett.* 1(4) (1991).
- Smith, H.I., S.D. Hector, M.L. Schattenburg, and E.H. Anderson. "A New Approach to High Fidelity E-Beam and Ion-Beam Lithography Based on an in situ Global-Fiducial Grid." *J. Vac. Sci. Technol. B* 9(6): 2992-2995 (1991).
- Smith, S.P., F. Zarinetchi, and S. Ezekiel. "Narrow-linewidth Stimulated Brillouin Fiber Laser and Applications." *Opt. Lett.* 16(6): 393-395 (1991).
- Standley, D. "An Object Position and Orientation IC with Embedded Imager." *IEEE J. Solid-State Circuits* 26(12): 1853-1860 (1991).

- Stevens, K.N., and C.A. Bickley. "Constraints Among Parameters Simplify Control of Klatt Formant Synthesizer." *J. Phon.* 19: 161-174 (1991).
- Svirsky, M.A., and E.A. Tobey. "Effect of Different Types of Auditory Stimulation on Vowel Formant Frequencies in Multichannel Cochlear Implant Users." *J. Acoust. Soc. Am.* 89: 2895-2904 (1991).
- Taherian, M.R., D.J. Yuen, T.M. Habashy, and J.A. Kong. "A Coaxial-Circular Waveguide for Dielectric Measurement." *IEEE Trans. Geosci. Remote Sensing* 29(2): 321-330 (1991).
- Tao, T., W. Wilkinson, and J. Melngailis. "Focused Ion Beam Induced Deposition of Platinum for Repair Processes." *J. Vac. Sci. Technol. B* 9(1): 162-164 (1991).
- Tsuk, M.J., and J.A. Kong. "A Hybrid Method for the Calculation of the Resistance and Inductance of Transmission Lines with Arbitrary Cross Sections." *IEEE Trans. Microwave Theory Tech.* 39(8): 1338-1347 (1991).
- Tulintseff, A.N., S.M. Ali, and J.A. Kong. "Input Impedance of a Probe-Fed Stacked Circular Microstrip Antenna." *IEEE Trans. Antenna Propag.* 39(3): 381-390 (1991).
- Uchanski, R.M., K.M. Millier, D.E. Ronan, C.M. Reed, and L.D. Braida. "Effects of Token Variability on Resolution for Vowel Sounds." *J. Acoust. Soc. Am.* 90: 2254 (1991).
- Veysoglu, M.E., H.A. Yueh, R.T. Shin, and J.A. Kong. "Polarimetric Passive Remote Sensing of Periodic Surfaces." *J. Electro. Waves Appl.* 5(3): 267-280 (1991).
- Vlcek, J.C., and C.G. Fonstad. "Multiply-graded InGaAlAs Heterojunction Bipolar Transistors." *Electron. Lett.* 27: 1213-1215 (1991).
- Vlcek, J.C., and C.G. Fonstad. "Precise Computer Control of the MBE Process—Application of Graded InGaAlAs/InP Alloys." *J. Cryst. Growth* 111: 56-60 (1991).
- Wilson, B.S., C.C. Finley, D.T. Lawson, R.D. Wolford, D.K. Eddington, and W.M. Rabinowitz. "Better Speech Recognition with Cochlear Implants." *Nature* 352: 236-238 (1991).
- Wong, N.C. "Squeezed Amplification in a Nondegenerate Parametric Amplifier." *Opt. Lett.* 16(21): 1698-1700 (1991).
- Yen, A., R.A. Ghanbari, Y-C. Ku, W. Chu, M.L. Schattenburg, J.M. Carter, and H.I. Smith. "X-ray Masks with Large-Area 100 nm Period Gratings for Quantum-Effect Device Applications." *Microelectron. Eng.* 13: 271-274 (1991).
- Yueh, S.H., and J.A. Kong. "Analysis of Diffraction from Chiral Gratings." *J. Electro. Waves Appl.* 5(7): 701-714 (1991).
- Yueh, S.H., J.A. Kong, J.K. Jao, R.T. Shin, H.A. Zebker, and T. LeToan. "K-Distribution and Multi-Frequency Polarimetric Terrain Radar Clutter." *J. Electro. Waves Appl.* 5(1): 1-15 (1991).
- Zarinetchi, F., S.P. Smith, and S. Ezekiel. "Stimulated Brillouin Fiber-Optic Laser Gyroscope." *Opt. Lett.* 16(4): 229-231 (1991).
- Zitkovsky, I.D., Q. Hu, T.P. Orlando, J. Melngailis, and M. Shepard. "Fabrication of High Tc Superconducting Weaklinks Using Focused Ion Beams." *Appl. Phys. Lett.* 59: 727 (1991).
- Zurek, P.M. "Interference Reduction for the Hearing Impaired." *J. Acoust. Soc. Am.* 89: 1957 (1991).
- Zurek, P.M. "Probability Distributions of Interaural Phase and Level Differences in Binaural Detection Stimuli." *J. Acoust. Soc. Am.* 90(4): 1927-1932 (1991).

## A.2.2 Journal Articles Accepted for Publication

- Arias, T.A., M.C. Payne, and J.D. Joannopoulos. "Ab-initio Molecular Dynamics Techniques Extended to Large-Length-Scale Systems." *Phys. Rev. B.*
- Arias, T.A., M.C. Payne, and J.D. Joannopoulos. "Precise and Efficient Ab-initio Molecular Dynamics." *Phys. Rev. B.*
- Ashar, P., A. Ghosh, and S. Devadas. "Boolean Satisfiability and Equivalence Checking Using General Binary Decision Diagrams." *Integrat. VLSI J.*
- Basu, S., M. Muendel, J. Goodberlet, S. Kaushik, and P.L. Hagelstein. "A Search for Gain at 191 Å." *SPIE-Int. Soc. Opt. Eng.*
- Bekefi, G. "Double Stream Cyclotron Maser." *SPIE Proc.*

- Braud, J.P., and P.L. Hagelstein. "Whispering-Gallery Laser Resonators. Part II: Analysis of Mirrors with Non-Uniform Curvature." *IEEE J. Quantum Electron.*
- Broekaert, T.P.E., and C.G. Fonstad. "AIAs Etch-Stop Layers for InGaAIAs/InP Heterostructure Devices and Circuits." *IEEE Trans. Electron. Dev.*
- Bryan, M.J., S. Devadas, and K. Keutzer. "Necessary and Sufficient Conditions for Robust Stuck-Open Fault Testability in Multilevel Networks." *IEEE Trans. Comput.-Aided Des.*
- Burns, G.F., and C.G. Fonstad. "Monolithic Fabrication of Strain-Free (Al,Ga)As Heterostructure Lasers on Silicon Substrates." *IEEE Photonics Tech. Lett.*
- Chamon, C. de C., C.K. Sun, H.A. Haus, and J.G. Fujimoto. "Femtosecond Time Division Interferometry Technique for Measuring the Tensor Components of  $X^{(3)}$ ." *Appl. Phys. Lett.*
- Chu, W., S.A. Rishton, M.L. Schattenburg, D.P. Kern, and H.I. Smith. "Fabrication of 50 nm Line-and-Space X-ray Masks in Thick Au Using a 50 keV Electron Beam System." *J. Vacuum Sci. Tech. B.*
- Cobra, D.T., A.V. Oppenheim, and J.S. Jaffe. "Geometric Distortions in Side-Scan Sonar Images: A Procedure for Their Estimation and Correction." *IEEE J. Oceanic Eng.*
- Conde, M.E., and G. Bekefi. "High Efficiency 33.3 GHz Free Electron Laser Amplifier with a Reversed Axial Guide Magnetic Field." *Nucl. Instrum. Methods A.*
- Conde, M.E., and G. Bekefi. "Experimental Study of a 33.3 GHz Free Electron Laser Amplifier with a Reversed Axial Guide Magnetic Field." *SPIE Proc.*
- Cornell, E.A., K.R. Boyce, D.L.K. Fygenson, and D.E. Pritchard. "Two Ions in a Penning Trap: Implications for Precision Mass Spectroscopy." *Phys. Rev. A.*
- Dal Pino, A., Jr., M. Needels, and J.D. Joannopoulos. "Oxygen Induced Broken-Bond Defect in Silicon." *Phys. Rev. B.*
- Devadas, S., and K. Keutzer. "Validatable Nonrobust Delay-Fault Testable Circuits Via Logic Synthesis." *IEEE Trans. Comput.-Aided Des.*
- Dynes, S.B.C., and B. Delgutte. "Phase Locking of Auditory-nerve Discharges to Sinusoidal Electric Stimulation of the Cochlea." *Hear. Res.*
- Evans, P.V., D.A. Smith, and C.V. Thompson. "Absence of Electrical Activity at High Angle Grain Boundaries in Zone-Melt-Recrystallised Silicon-on-Insulator Films." *Appl. Phys. Lett.*
- Friedland, L., and A. Bers. "Hermitian Description of Interacting Inhomogeneous Electron Beams." *Phys. Fluids B.*
- Frost, H.J., C.V. Thompson, and D.T. Walton. "Simulation of Thin Film Grain Structures: II. Abnormal Grain Growth." *Acta Metall. Mat.*
- Ghosh, A., S. Devadas, and A.R. Newton. "Heuristic Minimization of Boolean Relations Using Testing Techniques." *IEEE Trans. Comput.-Aided Des.*
- Ghosh, A., S. Devadas, and A.R. Newton. "Sequential Test Generation and Synthesis for Testability at the Register-Transfer and Logic Levels." *IEEE Trans. Comput.-Aided Des.*
- Green, T.J., Jr., and J.H. Shapiro. "Maximum-Likelihood Laser Radar Range Profiling with the Estimation-Maximization Algorithm." *Appl. Opt.*
- Greenberg, J.E., and P.M. Zurek. "Evaluation of an Adaptive Beamforming Method for Hearing Aids." *J. Acoust. Soc. Am.*
- Haus, H.A., and Y. Lai. "Theory of Cascaded Quarter Wave Shifted Distributed Feedback Resonators." *IEEE J. Quantum Electron.*
- Hemmer, P., M. Prentiss, and S. Shahriar. "Optical Force on the Raman Dark State in Two Standing Waves." *Opt. Commun.*
- Jiran, E., and C.V. Thompson. "Capillary Instabilities in Thin Continuous Films." *Thin Solid Films.*
- Lee, D., and N.C. Wong. "Tunable Optical Frequency Division Using a Phase Locked Optical Parametric Oscillator." *Opt. Lett.*
- Longworth, H.P., and C.V. Thompson. "An Experimental Study of Electromigration in Bicrystal Al Lines." *Appl. Phys. Lett.*
- Maynard, K.J., A.D. Johnson, S.P. Daley, and S.T. Ceyer. "A New Mechanism for Absorption: Collision Induced Absorption." *J. Chem. Soc.*

- Meskoob, B., S. Prasad, M-K. Vai, J.C. Vlcek, H. Sato, and C.G. Fonstad. "Bias-dependence of the Intrinsic Element Values of InGaAs/InAlAs/InP Inverted Heterojunction Bipolar Transistor." *IEEE Trans. Microwave Theory Tech.*
- Muendel, M.H., and P.L. Hagelstein. "Four-Wave Frequency Conversion of Coherent Soft X-rays in a Plasma." *Phys. Rev. A.*
- Oppenheim, A.V., E. Weinstein, K.C. Zangi, M. Feder, and D. Gauger. "Single-Sensor Active Noise Cancellation Based on the EM Algorithm." *IEEE Trans. Signal Process.*
- Peake, W.T., J.J. Rosowski, and T.J. Lynch III. "Middle-ear Transmission: Acoustic Versus Ossicular Coupling in Cat and Human." *Hear. Res.*
- Rabinowitz, W.M., D.K. Eddington, L.A. Delhorne, and P.A. Cuneo. "Relations Among Different Measures of Speech Reception in Subjects Using a Cochlear Implant." *J. Acoust. Soc. Am.*
- Rappe, A., J.D. Joannopoulos, and P. Bash. "A Test of the Planewaves for the Study of Molecules from First Principles." *J. Am. Chem. Soc.*
- Reed, C.M., W.M. Rabinowitz, N.I. Durlach, L.A. Delhorne, L.D. Braida, J.C. Pemberton, B.D. Mulcahey, and D.L. Washington. "Analytic Study of the Tadoma Method: Improving Performance Through the Use of Supplementary Tactual Displays." *J. Speech Hear. Res.*
- Rosenkranz, P.W. "Rough-Sea Microwave Emissivities Measured with the SSM/I." *IEEE Trans. Geosci. Remote Sensing.*
- Smet, J.H., T.P.E. Broekaert, and C.G. Fonstad. "Peak-to-valley Current Ratios as High as 50:1 at Room Temperature in Pseudomorphic In<sub>0.53</sub>Ga<sub>0.47</sub>As/AlAs/InAs Resonant Tunneling Diodes." *J. Appl. Phys.*
- Walton, D.T., H.J. Frost, and C.V. Thompson. "The Development of Bamboo and Near-Bamboo Microstructures in Thin Film Strips." *Appl. Phys. Lett.*
- Weinstein, E., M. Feder, and A.V. Oppenheim. "Multi-Channel Signal Separation Based on Decorrelation." *IEEE Trans. Signal Process.*
- Wong, N.C. "Gravity-Wave Detection Via an Optical Parametric Oscillator" *Phys. Rev. A.*
- Woods, W.S., A. Kulkarni, H.S. Colburn, A. Rigopoulos, S.D. Pang, N.I. Durlach, and E.M. Wenzel. "On the Externalization of Auditory Images." *Presence.*
- Wornell, G.W., and A.V. Oppenheim. "Estimation of Fractal Signals from Noisy Measurements Using Wavelets." *IEEE Trans. Signal Process.*
- Yen, A., E.H. Anderson, R.A. Ghanbari, M.L. Schattenburg, and H.I. Smith. "An Achromatic Holographic Configuration for 100 nm Period Lithography." *Appl. Opt.*
- Yen, A., M.L. Schattenburg, and H.I. Smith. "A Proposed Method for Fabricating 50 nm-period Gratings by Achromatic Holographic Lithography." *Appl. Opt.*
- Yu, P.C., S.J. Decker, H-S. Lee, C.G. Sodini, and J.L. Wyatt, Jr. "CMOS Resistive Fuses for Image Smoothing and Segmentation." *IEEE J. Solid-State Circuits.*
- Zhao, Y., D.C. Tsui, M. Santos, M. Shayegan, R.A. Ghanbari, D.A. Antoniadis, and H.I. Smith. "Magneto-optical Absorption in a Two Dimensional Electron Grid." *Appl. Phys. Lett.*

### A.2.3 Journal Articles Submitted for Publication

- Bagwell, P.F., and A. Kumar. "Comment on Effects of Channel Opening and Disorder on the Conductance of Narrow Wires." *Phys. Rev. B.*
- Boning, D.S., M.B. McIlrath, P. Penfield, and E. Sachs. "A General Semiconductor Process Modeling Framework." *IEEE Trans. Semicond. Manuf.*
- Coronado, C.A., E. Ho, L.A. Kolodziejski, and C.A. Huber. "Photo-Assisted Molecular Beam Epitaxy of ZnSe." *Appl. Phys. Lett.*
- Dron, L. "The Multi-Scale Veto Model: A Two-Stage Analog Network for Edge Detection and Image Reconstruction." *Int. J. Comput. Vision.*
- Early, K., G.E. Rittenhouse, J.M. Graybeal, and H.I. Smith. "Sub-100- and Sub-10-nm-thick Membranes Anisotropically Etched in (110) Silicon." *Appl. Phys. Lett.*
- Eddington, D.K., G. Girzon, and P.A. Cuneo. "An Electroanatomical Model of Intracochlear Electrical Stimulation II: Tests of Model Predictions for Monopolar Electrodes." *Hear. Res.*

- Elfadel, I.M., and R.W. Picard. "On A Unifying Neighborhood-Based Framework for Morphological Analysis and Co-Occurrence Methods." *IEEE Trans. Pattern Anal. Mach. Intell.*
- Girzon, G., and D.K. Eddington. "An Electroanatomical Model of Intracochlear Electrical Stimulation I: Formulation, Solution and Predictions for Monopolar Electrodes." *Hear. Res.*
- Helmerson, K., A. Martin, and D.E. Pritchard. "Laser and rf Spectroscopy of Magnetically Trapped Neutral Atoms." *J. Opt. Soc. Am. B.*
- Holmberg, E., R. Hillman, J. Perkell, and C. Gress. "Relationships Between SPL and Aerodynamic and Acoustic Measures of Voice Production: Inter- and Intra-speaker Variation." *J. Speech Hear. Res.*
- Ketterle, W., and D.E. Pritchard. "Trapping Ground State Atoms in Static Fields." *Appl. Phys. B.*
- Ketterle, W., A. Martin, M. Joffe, and D.E. Pritchard. "Slowing Atoms with Diffuse Laser Light." *Phys. Rev. Lett.*
- Kobler, J.B., J.J. Guinan, Jr., S.R. Vacher, and B.E. Norris. "Acoustic-Reflex Frequency Selectivity in Single Stapedius Motoneurons of the Cat." *J. Neurophysiol.*
- Lattes, A.L., S.C. Munroe, M.M. Seaver, J.E. Murguia, and J. Melngailis. "Improved Drift in Two-Phase, Long-Channel, Shallow-Buried-Channel CCD's with Longitudinally Nonuniform Storage-Gate Implants." *IEEE Trans. Electron Devices.*
- Oppenheim, A.V., E. Weinstein, K.C. Zangi, M. Feder, and D. Gauger. "Single-Sensor Active Noise Cancellation Based on the EM Algorithm." *IEEE Trans. Signal Process.*
- Perkell, J., M. Svirsky, M. Matthies, and M. Jordan. "Trading Relations Between Tongue-body Raising and Lip Rounding in Production of the Vowel /u/." *PERILUS*, the working papers of the Department of Phonetics, Institute of Linguistics, Stockholm.
- Perkell, J., and M. Matthies. "Temporal Measures of Anticipatory Labial Coarticulation for the Vowel /u/: Within- and Cross-Subject Variability." *J. Acoust. Soc. Am.*
- Perkell, J., H. Lane, M. Svirsky, and J. Webster. "Speech of Cochlear Implant Patients: A Longitudinal Study of Vowel Production." *J. Acoust. Soc. Am.*
- Picard, R.W., and I.M. Elfadel. "Texture Modeling: Markov/Gibbs Random Fields, Co-Occurrence, and Boundary Length Optimization." *IEEE Trans. Pattern Anal. Mach. Intell.*
- Picard, R.W., and I.M. Elfadel. "On the Structure of Aura Matrices for the Markov/Gibbs Texture Model." *J. Math. Imag. Vision.*
- Ravicz, M.E., J.J. Rosowski, and H.F. Voigt. "Sound-power Collection by the Auditory Periphery of the Mongolian Gerbil *Meriones Unguiculatus*: I. Middle-ear Input Impedance." *J. Acoust. Soc. Am.*
- Shattuck-Hufnagel, S. "The Role of Word and Syllable Structure in Phonological Encoding in English." *Cognition.*
- Stevens, K.N., S.E. Blumstein, L. Glicksman, M. Burton, and K. Kurowski. "Acoustic and Perceptual Characteristics of Voicing in Fricatives and Fricative Clusters." *J. Acoust. Soc. Am.*
- Svirsky, M., H. Lane, J. Perkell, and J. Webster. "Effects of Short-Term Auditory Deprivation on Speech Production in Adult Cochlear Implant Users." *J. Acoust. Soc. Am.*
- Turchette, Q.A., D.E. Pritchard, and D.W. Keith. "Numerical Model of a Multiple Grating Interferometer." *J. Opt. Soc. Am. B.*
- Umminger, C.B., and C.G. Sodini. "Switched Capacitor Networks for Monolithic Image Processing Systems." *IEEE Trans. Circuits Syst.*
- Wightman, C., S. Shattuck-Hufnagel, M. Ostendorf, and P.J. Price. "Segmental Durations in the Vicinity of Prosodic Phrase Boundaries." *J. Acoust. Soc. Am.*
- Wong, N.C. "Proposal for a 10 THz, Precision Optical Frequency Comb Generator." *Electron. Lett.*
- Wyatt, J.L., Jr., C. Keast, M. Seidel, D. Standley, B. Horn, T. Knight, C. Sodini, H-S. Lee, and T. Poggio. "Analog VLSI Systems for Image Acquisition and Fast Early Vision Processing." *Int. J. Comput. Vision.*
- Yen, A., M.L. Schattenburg, H.I. Smith, and G.N. Taylor. "An Anti-Reflective Coating for Use with PMMA at 193 nm." *J. Electrochem. Soc.*

### A.3 Books/Chapters in Books

- Berker, A.N. "Absence of Temperature-Driven First-Order Phase Transitions in Systems with Random Bonds." In *Science and Technology of Nanostructured Magnetic Materials*, pp. 411-417. Eds. G.C. Hadjipanayis and G.A. Prinz. New York: Plenum Press, 1991.
- Bickley, C.A. "Vocal-fold Vibration in a Computer Model of a Larynx." In *Vocal Fold Physiology*, pp. 37-46. Eds. J. Gauffin and B. Hammarberg. San Diego: Singular, 1991.
- Chow, C.C., A. Bers, and A.K. Ram. "The Three Wave Interaction and Spatiotemporal Chaos." In *Physics of Space Plasmas (1991)*, SPI Conference Proceedings and Reprint Series. Forthcoming.
- Coppi, B. "Isotropic Effect in Plasma Confinement." In *Plasma Physics and Controlled Nuclear Fusion Research 1990*, 2: 413. Vienna: I.A.E.A, 1991.
- Delgutte, B., and P. Cariani. "Coding of the Pitch of Harmonic and Inharmonic Complex Tones in the Interspike Intervals of Auditory-nerve Fibers." In *Audition, Speech, and Language*. Ed. M.E.H. Schouten. Berlin: Moulton-de Gruyter. Forthcoming.
- Halle, M., and K.N. Stevens. "Knowledge of Language and the Sounds of Speech." In *Music, Language, Speech and Brain*, pp. 1-19. Eds. J. Sundberg, L. Nord, and R. Carlson. Basingstoke, Hampshire: Macmillan Press, 1991.
- Horn, B.K.P. "Parallel Networks for Machine Vision." In *Research Directions in Computer Science: An MIT Perspective*. Eds. A. Meyer, G.V. Guttag, R.L. Rivest, and P. Szolovits. Cambridge, Massachusetts: MIT Press, 1991.
- LaMotte, R.H., and M.A. Srinivasan. "Surface Microgeometry: Neural Encoding and Perception." In *Information Processing in the Somatosensory System*. Eds. O. Franzen and J. Westman. Wenner-Gren International Symposium Series. New York: Macmillan Press, 1991.
- Lumsdaine, A., J.L. Wyatt, Jr., and I.M. Elfadel. "Nonlinear Analog Networks for Image Smoothing and Segmentation." In *Parallel Processing on VLSI Arrays*. Ed. J.A. Nossek. Norwell, Massachusetts: Kluwer Academic Publishers, 1991.
- Melngailis, J. "Ion Lithography and Focused Ion Beam Implantation." In *Handbook of VLSI Lithography*. Eds. W.B. Glendinning and J.N. Helbert. New York: Noyes Publishers, 1991.
- Pritchard, D.E. "Atom Optics." In *Atomic Physics 12*, pp. 165-170. Eds. J.C. Zorn, R.R. Lewis, and M. Weiss. New York: American Journal of Physics, 1991.
- Ram, A.K., and A. Bers. "Absolute Versus Convective Analysis of Instabilities in Space Plasmas." In *Physics of Space Plasmas (1990)*, SPI Conference Proceedings and Reprint Series, Number 10. Eds. T. Chang, G.B. Crew, and J.R. Jasperse. Cambridge, Massachusetts: Scientific Publishers, 1991.
- Rappe, A.M., and J.D. Joannopoulos. "The Design of Convergent and Transferable AB Initio Pseudopotentials." In *Computer Simulated Material Science*, pp. 409-422. Eds. M. Meyer and V. Pontikis. Dordrecht, the Netherlands: Kluwer Academic Publishers, 1991.
- Reed, C.M., N.I. Durlach, and L.A. Delhorne. "Natural Methods of Tactual Communication." In *Tactile Aids for the Hearing Impaired*. Ed. I.R. Summers. New York: Taylor and Francis. Forthcoming.
- Rosowski, J.J. "Hearing in Transitional Mammals: Predictions from the Middle-ear Anatomy and Hearing Capabilities of Extant Mammals." In *The Evolutionary Biology of Hearing*, pp. 625-631. Eds. D.B. Webster, A.N. Popper, and R.R. Ray. New York: Springer-Verlag, 1991.
- Shahriar, S., P. Hemmer, N. Bigelow, and M. Prentiss. "Forces on Three Level Atoms Including Trapped State Contribution." In *Quantum Electronics and Laser Science*, Technical Digest Series, p. 186. Washington, DC: Opt. Soc. Am., 1991.
- Smith, H.I., and M.L. Schattenburg. "Lithography for Manufacturing at 0.25 Micrometer and Below." In *Semiconductor Materials and Processing Technology*. Ed. J.M. Poate. Dordrecht, the Netherlands: Kluwer Academic Publishers, 1992.
- Srinivasan, M.A. "Tactual Interfaces: The Human Perceiver." In *Human-Machine Interfaces for Teleoperators and Virtual Environments*. Eds. N.I. Durlach, T.B. Sheridan, and S.R. Ellis. NASA Conference Publication 10071, 1991.
- Srinivasan, M.A., and R.H. LaMotte. "Encoding of Shape in the Responses of Cutaneous Mecha-

noreceptors." *Information Processing in the Somatosensory System*. Eds. O. Franzen and J. Westman. Wenner-Gren International Symposium Series. New York: Macmillan Press, 1991.

Srinivasan, M.A., and R.H. LaMotte. "Tactile Discrimination and Representation of Texture, Shape, and Softness." In *Human-Machine Interfaces for Teleoperators and Virtual Environments*. Eds. N.I. Durlach, T.B. Sheridan, and S.R. Ellis. NASA Conference Publication 10071, 1991.

Stevens, K.N. "Vocal-Fold Vibration for Obstruent Consonants." In *Vocal Fold Physiology: Acoustic, Perceptual, and Physiological Aspects of Voice Mechanisms*, pp. 29-36. Eds. J. Gauffin and B. Hammarberg. San Diego, California: Singular Publishing Group, 1991.

Stevens, K.N. "Some Factors Influencing the Precision Required for Articulatory Targets: Comments on Keating's Paper." In *Papers in Laboratory Phonology I*, pp. 471-475. Eds. J.C. Kingston and M.E. Beckman. Cambridge: Cambridge University Press, 1991.

Stevens, K.N. "Speech Synthesis Methods: Homage to Dennis Klatt." In *Talking Machines: Theories, Models, and Applications*. Eds. G. Bailly and C. Benoit. New York: Elsevier. Forthcoming.

Stevens, K.N. "Models of Speech Production." In *Handbook of Acoustics*. Ed. M. Crocker. New York: Wiley. Forthcoming.

Stevens, K.N. "Phonetic Evidence for Hierarchies of Features." In *LabPhon3*. Ed. P. Keating. Los Angeles: University of California. Forthcoming.

Wang, J., M. Needels, and J.D. Joannopoulos. "Surface and Fracture Energies in GaAs." In *Surface Physics and Related Topics*, p. 314. Teaneck, New Jersey: World Scientific Publishers, 1991.

## A.4 RLE Publications

RLE publications may be obtained by writing the Communications Office, Building 36-412, Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139-4307, at the listed cost.

Prepayment in the form of a check or money order in U.S. dollars payable to MIT RLE is required. Please allow six to eight weeks for foreign surface mail. For foreign airmail, include an additional \$4.00 for each report ordered.

*RLE 45th Anniversary Brochure*. MIT, 1991. 72 pp. \$6.50.

*RLE currents* 4(2): (1991). "The MIT Radiation Laboratory: RLE's Microwave Heritage." 32 pp. No charge.

*RLE currents* 5(1): (1991). "Pathways to the Future at RLE." 16 pp. No charge.

*RLE Progress Report No. 133*: January - December 1990. MIT, 1991. 390 pp. No charge.

*RLE Speech Communication Group "Working Papers"*. Vol. 7. MIT, 1991. No charge.

Early, K.R. *Experimental Characteristics and Physical Modeling of Resolution Limits in Proximity Printing X-ray Lithography*. RLE TR-565. MIT, 1991. \$29.00.

Huang, C.B. *An Acoustic and Perceptual Study of Vowel Formant Trajectories in American English*. RLE TR-563. MIT, 1991. \$16.00.

Musicus, B.R., and S. Prasanna. *OKI Advanced Array Processor (AAP) Hardware Description*. RLE TR-562. MIT, 1991. \$14.00.

Tsai, F.S. *Characterization of Mechanical and Optical Properties of X-ray Mask Membranes*. RLE TR-564. MIT, 1991. \$11.00.

Wornell, G.W. *Synthesis, Analysis, and Processing of Fractal Signals*. RLE TR-566. MIT, 1991. \$20.00.

## A.5 RLE Theses

Theses are available from the Microreproduction Laboratory, Building 14-0551, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139-4307. Write for individual prices.

- Barwick, D.S. *A Study on Fiber-Coupled, External Cavity, Semiconductor Lasers*. S.M. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Binder, B.T. *Laser Radar Tomography: The Effects of Speckle*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Bonanni, P.G. *Atmospheric Wave Detection and Parameter Estimation Using Passive Measurements of Thermal Emission Near 118 GHz*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Chen, J.C. *Theory of Passively Mode-Locked Lasers with Dynamic Gain Saturation*. S.M. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Chiarchiaro, W.J., II. *54-GHz Radiometer for Profiling the Temperature of the Atmosphere*. S.M. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Chow, C.C. *Spatiotemporal Chaos in the Nonlinear Three Wave Interaction*. Ph.D. diss., Dept. of Physics, MIT, 1991.
- Connell, M.W. *Spectral Distortion of Picosecond Pulses in AlGaAs Diode Laser Amplifiers*. S.B. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Decker, S.J. *A Resistive Fuse for Image Segmentation and Smoothing*. S.M. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Delisle, J.T. *Three-Dimensional Profiling Using Depth of Focus*. S.M. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Dominguez, J. *Effortless Internal Camera Calibration Using the Images of Spheres*. S.B. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Early, K.R. *Experimental Characterization and Physical Modeling of Resolution Limits in Proximity Printing X-Ray Lithography*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Freeman, C.G. *Diffuse Slowing of a Beam of Neutral Sodium Atoms*. S.B. thesis, Dept. of Physics, MIT, 1991.
- Goh, M.Y. *Radiometric Stability of the Far Infrared Absolute Spectrophotometer (FIRAS)*. S.M. thesis, Dept. of Physics, MIT, 1991.
- Hara, Y. *Application of Neural Networks to Radar Image Classification*. S.M. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Hedgcock, J.M. *Development and Testing of a System to Evaluate Manual Tracking Ability*. S.B. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Helmerson, K. *Laser Cooling and Spectroscopy of Magnetically Trapped Atoms*. Ph.D. diss., Dept. of Physics, MIT, 1991.
- Hoston, W.C., Jr. *Multicritical Phase Diagrams of the Blume-Emery-Griffiths Model with Repulsive Biquadratic Coupling: Mean-Field and Renormalization-Group Studies*. S.M. thesis, Dept. of Physics, MIT, 1991.
- Huang, C.B. *An Acoustic and Perceptual Study of Vowel Formant Trajectories in American English*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Iu, C-H. *Energy Level Structure of Atoms in Magnetic Fields*. Ph.D. diss., Dept. of Physics, MIT, 1991.
- Johnson, A.D. *Dynamics of Hydrogen Absorption into the Ni(111) Bulk: Spectroscopic Identification and Chemistry of Subsurface Hydrogen*. Ph.D. diss., Dept. of Chem., MIT, 1991.
- Keith, D.W. *An Interferometer for Atoms*. Ph.D. diss., Dept. of Physics, MIT, 1991.
- Knecht, W. *A Nonlinear Extension of a Beamformer for Multi-Microphone Speech Processing*. S.M. thesis, Dept. of Physics, MIT, 1991.
- Ko, W-Y. *Graphical Framework for Computer-Aided Fabrication Environment's Process Flow Representation*. S.M. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Ku, Y-C. *Fabrication of Distortion Free X-ray Masks Using Low Stress Tungsten*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.

- Kuo, T.Y. *Delta-Doped Heterojunction Bipolar Transistors*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Lehár, J. *The Time Delay in the Double Quasar 0957+561 and a Search for Gravitational Lenses*. Ph.D. diss., Dept. of Physics, MIT, 1991.
- Leong, K.W. *Intensity Quantum Noise Reduction with an Above-Threshold Optical Parametric Oscillator*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Liu, Y-C. *Coplanar-Spherical-Particle Coarsening in Discontinuous Ultrathin Polycrystalline Gold Films on Amorphous Silicon-Nitride Substrates*. Ph.D. diss., Dept. of Mater. Sci. and Eng., MIT, 1991.
- McQuirk, I.S. *Direct Methods for Estimating the Focus of Expansion in Analog VLSI*. S.M. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Mitchell, D.R. *The Onset of Chaos for a Semi-Classical Alkali Atom in a Uniform Electric Field*. S.B. thesis, Dept. of Physics, MIT, 1991.
- Murguia, J.E. *The Application of Focused Ion Beam Implantation to the Design and Fabrication of MOS Devices*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Netz, R.R. *Frustration in Magnetic, Liquid Crystal, and Surface Systems: Monte Carlo Mean-Field Theory*. S.M. thesis, Dept. of Physics, MIT, 1991.
- Nghiem, S.V. *Electromagnetic Wave Models for Polarimetric Remote Sensing of Geophysical Media*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Ogno, A. *The History of Tactile Aids for the Deaf: A Case Study of Audiological Engineering Corporation*. S.B. thesis, Dept. of Mech. Eng., MIT, 1991.
- Picard, R.W. *Texture Modeling: Temperature Effects on Markov/Gibbs Random Fields*. Sc.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Prasanna, G.N.S. *Structure Driven Multiprocessor Compilation of Numeric Problems*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Quirch, J-A. *Development of a Millimeter Wavelength Circularly Polarized Antenna*. S.B. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Reisman, C.A. *Envelope Modulation Spectra of Bandpass Filtered Speech*. S.B. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Ro, J-S. *Microstructure and Mechanism of Gold Films Grown by Ion Beam Induced Deposition*. Ph.D. diss., Dept. of Mater. Sci. and Eng., MIT, 1991.
- Sheen, D.M. *Numerical Modeling of Microstrip Circuits and Antennas*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Standley, D.L. *Analog VLSI Implementation of Smart Vision Sensors: Stability Theory and an Experimental Design*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Tsai, F.S. *Characterization of Mechanical and Optical Properties of X-Ray Mask Membranes*. S.B. thesis, Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Turchette, Q.A. *Numerical Model of a Three Grating Interferometer for Atoms*. S.B. thesis, Dept. of Physics, MIT, 1991.
- Vlcek, J.C. *Molecular Beam Epitaxial Growth and Applications of Graded Bandgap in GaAlAs Semiconducting Alloys*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Walrod, D.B. *Third Order Optical Nonlinearities in Semiconductor Superlattices*. Ph.D. diss., Dept. of Physics, MIT, 1991.
- Wornell, G.W. *Synthesis, Analysis, and Processing of Fractal Signals*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.
- Yen, A. *Fabrication of Large-Area 100 nm-Period Gratings Using Achromatic Holographic Lithography*. Ph.D. diss., Dept. of Electr. Eng. and Comput. Sci., MIT, 1991.

## A.6 Miscellaneous

- Basu, B., and B. Coppi. *Electromagnetic Modes Driven by Streaming Proton Populations*. RLE PTP Report 91/6, MIT, 1991.
- Bers, A., V. Fuchs, and C.C. Chow. "Maximizing Absorption in Ion-Cyclotron Heating of Tokamak Plasmas." *Plasma Fusion Center Report PFC/JA-91-10*. MIT, 1991.
- Coppi, B. *Levels of Protection Against the Onset of Internal Oscillations in the Ignitor Experiment*. RLE PTP Report 91/3, MIT, 1991.
- Coppi, B., and M. Nassi. *Comments on the Ignitor and the BPX (CIT) Concepts*. RLE PTP Report 91/5, MIT, 1991.
- Kupfer, K., and A. Bers. "Fast Electron Transport in Lower-Hybrid Current Drive." *Plasma Fusion Center Report PFC/JA-91-13*. MIT, 1991.
- Kupfer, K., A. Bers, and A.K. Ram. "Fast Electron Transport During Lower-Hybrid Current Drive." *Plasma Fusion Center Report PFC/JA-91-9*. MIT, 1991.
- Migliuolo, S. *Ion Temperature Gradient Driven Impurity Modes*. RLE PTP Report 91/12, MIT, 1991.
- Migliuolo, S. *Theory of Resistive and Ideal Internal Kinks*. RLE PTP Report 91/1, MIT, 1991.
- Ram, A.K., and A. Bers. "Comments on Absolute and Convective Instabilities." *Plasma Fusion Center Report PFC/JA-91-8*. MIT, 1991.
- Ram, A.K., and A. Bers. "Absolute Versus Convective Analysis of Instabilities in Space Plasmas." *Plasma Fusion Center Report PFC/JA-91-4*. MIT, 1991.
- Riconda, C. *Emission, Propagation and Absorption of Synchrotron Radiation in Nonhomogeneous Plasmas*. RLE PTP Report 91/8, MIT, 1991.
- Srinivasan, M.A., and K. Dandekar. *Role of Mechanics in Cutaneous Mechanoreceptor Response*. Society for Neuroscience Abstracts, 1991.