

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 1994 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 1994. Theses and technical reports may be ordered from Document Services, MIT Libraries, Room 14-0551, 77 Massachusetts Avenue, Cambridge, Massachusetts 02139-4307; telephone (617) 253-5668; email: docs@mit.edu; fax: (617) 253-1690.

A.1 Meeting Papers

A.1.1 Papers Presented

Acoustical Society of America Meeting, Austin, Texas, November 28-December 2, 1994.

Chen, M.Y. "Baseline Acoustic Parameters for Nasalized Vowels on English and French."

Liu, S.A. "Landmark Detection for Distinctive Feature-based Speech Recognition."

Advanced Research Projects Agency Optoelectronics Program Review, Monterey, California, June 13-17, 1994.

Villeneuve, P.R., and J.D. Joannopoulos. "The Development of New Periodic Dielectric Material Waveguides for Compact Integrated Optics."

Advanced Solid-State Lasers Topical Meeting, Salt Lake City, Utah, February 7-10, 1994.

Wong, N.C., and D. Lee. "Frequency Tuning and Phase Locking of an Ultrastable Doubly Resonant Optical Parametric Oscillator."

Advanced Research Projects Agency DS Research Council Summer Conference Workshop on Fundamental Limits to Optoelectronic Devices, La Jolla, California, July 5, 1994.

Haus, H.A. "Quantum Limits in Optical Devices."

Advances in Optical Imaging and Photon Migration Conference, Orlando, Florida, March 21-23, 1994.

Hee, M.R., J.A. Izatt, D. Huang, E. Swanson, C.P. Lin, J.S. Schuman, C. Puliafito, and J.G. Fujimoto. "Micron-resolution Optical Coherence Tomography of the Human Eye."

Izatt, J.A., M.R. Hee, G. Tearney, G.M. Owen, E. Swanson, and J.G. Fujimoto. "Optical Coherence Microscopy."

American Astronomical Society Meeting, Washington, DC, January 11-14, 1994.

Avruch, I.M., S.R. Conner, D.J. Becker, and B.F. Burke. "Low Surface Brightness Structure in the Field of the Gravitational Lens 0957+561." (poster session)

Ellithorpe, J.D., and J.N. Hewitt. "VLBI Observations of the Gravitational Lens, MG0414+0534."

American Astronomical Society Meeting, 184th, Minneapolis, Minnesota, May 29-June 2, 1994.

Herold, L.K., B.F. Burke, S.R. Conner, and E.J. Gaidos. "Compact Double Radio Sources in the MIT-Green Bank-VLA (MGV) Gravitational Lens Search Sample."

American Physical Society Meeting, Pittsburgh, Pennsylvania, March 21-25, 1994

Cho, K. "STM Tip-Surface Interactions."

Hui, K., and A.N. Berker. "Analytic Expression for the Exact Boundary of the Superantiferromagnetic Phase of the Ising Model with Nearest- and Next-Nearest-Neighbor Interactions."

Falicov, A., and A.N. Berker. "Finite-Temperature Phase Diagram of the tJ Model: Renormalization-Group Theory."

Schapers, T., R.A. Wyss, Q. Hu, M. Krueger, A. Foster, A. van der Hart, and H. Lueth. "Far-

- infrared Studies of Planar Resonant Tunneling Field Effect Transistors."
- Verghese, S., R.A. Wyss, T. Schapers, Q. Hu, E.R. Brown, K.A. McIntosh, and M.R. Melloch. "Broad-band Far-infrared Spectroscopy of Mesoscopic Devices."
- Wyss, R.A., C.C. Eugster, J. del Alamo, Q. Hu, M.J. Rooks, and M.R. Melloch. "Far-Infrared Radiation-Induced Thermopower in an Antenna-Coupled Quantum Point Contact."
- Wyss, R.A., Q. Hu, M. Krueger, A. Foerster, A. van der Hart, and H. Lueth. "Far-Infrared Studies of Planar Resonant Tunneling Field Effect Transistors."
- American Physical Society*, Division of Atomic, Molecular, and Optical Physics Meeting, Crystal City, Virginia, April 18-22, 1994.
- Andrews, M.R., D. Pelly, K. Davis, M-O. Mewes, and W. Ketterle. "Improved Design of Neutral Atom Magnetic Traps."
- Hammond, T.D., M.S. Chapman, C.R. Ekstrom, J. Schmiedmayer, and D.E. Pritchard. "Interferometry with Atoms and Molecules."
- American Physical Society*, Division of Plasma Physics Meeting, 36th Annual, Minneapolis, Minnesota, November 7-11, 1994.
- Bers, A., A.K. Ram, C.C. Chow. "Saturation of SRS by Spatiotemporal Chaos in Coupled Langmuir Decay." (poster session)
- Carpignano, F., B. Coppi, and M. Nassi. "Prototypes Construction in the Ignitor Program."
- Migliuolo, S., S. Luckhardt, J. Kesner, F. Paoletti, P. Zolfaghari, S. Bernabei, and M. Oabayashi. "Prompt Sawtooth Stabilization in Lower Hybrid RF Experiments on PBX-M."
- Nassi, M., F. Carpignano, and B. Coppi. "The Ignitor Project."
- Penn, G., Y.K. Pu, S. Migliuolo, and B. Coppi. "The Isotopic Effect: Particles and Energy."
- Ram, A.K., A. Bers, S.D. Schultz, and V. Fuchs. "Interaction of Ion-Bernstein Waves with Electrons." (poster session)
- Schultz, S.D., A. Bers, and A.K. Ram. "Effect of RF Waves on Bootstrap Current in Tokamaks." (poster session)
- American Society for Mass Spectrometry Conference on Mass Spectrometry*, Chicago, Illinois, May 29-June 3, 1994.
- Bradley, M., F. DiFilippo, V. Natarajan, F. Palmer, and D.E. Pritchard. "Mass Spectrometry At and Below 0.1 Parts Per Billion."
- Applied Superconductivity Conference*, Boston, Massachusetts, October 16-21, 1994.
- de Lange, G., B.R. Jacobson, and Q. Hu. "Micromachined Millimeter-wave SIS Mixers."
- Argonne National Laboratory Physics Division Colloquium*, Chicago, Illinois, April 1, 1994.
- Hewitt, J.N. "Gravitational Lenses and Cosmology."
- Association for Research in Otolaryngology Meeting*, 17th Mid-Winter, St. Petersburg, Florida, February 6-10, 1994.
- Delgutte, B., P.X. Joris, R.Y. Litovsky, and T.C.T. Yin. "Different Acoustic Cues Contribute to the Directional Sensitivity of Inferior-Colliculus Neurons as Studied with Virtual-Space Stimuli."
- Ravicz, M.E., and J.J. Rosowski. "The Effect of Middle-ear Cavity Size on Acoustic Power Flow in the Ear of the Mongolian Gerbil." (poster session)
- Voss, S.E., J.J. Rosowski, and W.T. Peake. "Is the Pressure Difference Between the Oval and Round Windows the Stimulus for Cochlear Responses?" (poster session)
- Association for Research in Vision and Ophthalmology*, Annual Meeting, Sarasota, Florida, May 1-6, 1994.
- Hee, M.R., J.A. Izatt, E.A. Swanson, D. Huang, C.P. Lin, J.S. Schuman, C.A. Puliafito, J. Inderfurth, R. Birngruber, and J.G. Fujimoto. "In Vivo Optical Coherence Tomography of the Anterior Segment."
- Izatt, J.A., M.R. Hee, D. Huang, E.A. Swanson, C.P. Lin, J.S. Schuman, C.A. Puliafito, and J.G. Fujimoto. "High-Speed In Vivo Retinal Imaging with Optical Coherence Tomography."
- Mann, J., D. Edell, J.F. Rizzo, J. Raffel, and J.L. Wyatt, Jr. "Development of a Silicon Retinal Implant: Microelectronic System for Wireless Transmission of Signal and Power."
- Narayanan, M.V., J.F. Rizzo, D. Edell, and J.L. Wyatt, Jr. "Development of a Silicon Retinal Implant: Cortical Evoked Potentials Following Focal Stimulation of the Rabbit Retina with Light and Electricity."

- Wyatt, J.L., Jr., J.F. Rizzo, A. Grumet, D. Edell, and R.J. Jensen. "Development of a Silicon Retinal Implant: Epiretinal Stimulation of Retinal Ganglion Cells in the Rabbit."
- Atmospheric Infrared Spectrometer/Advanced Microwave Sounding Unit Team Meeting*, Washington, DC, May 17-18, 1994.
- Staelin, D.H. "Status Report: MTS, TOGA, COARE, and CAMEX Data."
- Board on Mathematical Sciences National Research Council Symposium on Large-Scale Structures in Acoustics and Electromagnetics*, Washington, DC, September 26-27, 1994.
- Haus, H.A. "Distributed Feedback Resonators."
- California Institute of Technology Colloquium*, Pasadena, California, May 25, 1994.
- Hewitt, J.N. "Gravitational Lenses, Time Delays, and Hubble's Constant."
- Colorado Conference on Iterative Methods*, Breckenridge, Colorado, April 5-9, 1994.
- Kamon, M., and J.R. Phillips. "Preconditioning Techniques for Constrained Vector Potential Integral Equations, with Application to 3-D Magnetoquasistatic Analysis of Electronic Packages."
- White, J., J.R. Phillips, and T. Korsmeyer. "Comparing Precorrected-FFT and Fast Multipole Algorithms for Solving Three-Dimensional Potential Integral Equations."
- Conference on Fundamental Problems in Quantum Mechanics Theory*, Baltimore, Maryland, June 17-21, 1994.
- Pritchard, D.E. "Interferometry with Atoms and Molecules."
- Conference on Motor Speech*, Sedona, Arizona, March 24-27, 1994.
- Perkell, J.S., M. Matthies, and M. Svirsky. "Factors Underlying Findings of Motor Equivalence in the Relation between the Vocal Tract Area Function and the Acoustic Transfer Function."
- Conference on Neural Networks for Computing*, Snowbird, Utah, April 5-8, 1994.
- Wyatt, J.L., Jr., and I.M. Elfadel. "On the Solutions of Oja's Equations." (poster session)
- Wyatt, J.L., Jr., and J. Rizzo. "Steps Toward the Development of a Silicon Retinal Implant to Aid Patients Suffering from Certain Forms of Blindness."
- Conference on Nonlinear Optics: Materials, Fundamentals, and Applications*, Waikoloa, Hawaii, July 25-29, 1994.
- Ippen, E.P., K.R. Tamura, L.E. Nelson, and H.A. Haus. "Ultrashort-pulse Fiber Ring Lasers."
- Shapiro, J.H., and K-X. Sun. "Semiclassical versus Quantum Behavior in Fourth-Order Interference."
- Shapiro, J.H., and L.G. Joneckis. "Enhanced Fiber Squeezing Via Local-Oscillator Pulse Compression."
- Conference on Precision Electromagnetic Measurements*, Boulder, Colorado, June 27-July 1, 1994.
- DiFilippo, F., V. Natarajan, M. Bradley, F. Palmer, S. Rusinkiewicz, and D.E. Pritchard. "Mass Spectrometry at 0.1 Part Per Billion for Fundamental Metrology."
- Conference on Quantum Nonintegrability*, Philadelphia, Pennsylvania, September 8-11, 1994.
- Kleppner, D. "Advances in Periodic Orbit Spectroscopy."
- Conference on Quantum Theory of Real Materials*, Berkeley, California, August 11-15, 1994.
- Joannopoulos, J.D. "Photonic Crystals." (talk)
- CLEO/QELS-Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science*, Anaheim, California, May 5-13, 1994.
- Adams, L.E., E.S. Kintzer, C.-K. Sun, M. Ramaswamy, J.G. Fujimoto, U. Keller, and M.T. Asom. "Mode Locking of a Broad Area Semiconductor Laser Using a Multiple-Quantum-Well Saturable Absorber."
- Boivin, L., F.X. Kartner, and H.A. Haus. "Quantum Theory of Self-Phase Modulation with Finite Response Time."
- Chapman, M.S. "Atomic and Molecular Interferometry."
- Cheng, T.K., M.S. Dresselhaus, and E.P. Ippen. "Direct Observation of Ultrafast Ionic Screening."
- Doerr, C.R., W.S. Wong, H.A. Haus, and E.P. Ippen. "Additive-Pulse Mode Locking/Limiting Storage Ring."

- Dougherty, D.J., F.X. Kartner, H.A. Haus, and E.P. Ippen. "Direct Measurement of the Raman Gain Spectrum of Glass Fibers with Femtosecond Pulses."
- Hultgren, C.T., and E.P. Ippen. "Femtosecond Band-edge Index Nonlinearities in Active AlGaAs Waveguides."
- Izatt, J.A., M.R. Hee, G.M. Owen, G. Tearney, E.A. Swanson, and J.G. Fujimoto. "Optical Coherence Microscopy."
- Ketterle, W., K.B. Davis, M.A. Joffe, M.O. Newes, and D.E. Pritchard. "Dark Cold Atoms at High Densities."
- Lee, D., and N.C. Wong. "Tuning Characteristics of a CW Dual-cavity KTP Optical Parametric Oscillator."
- Paye, J., M. Ramaswamy, J.G. Fujimoto, and E.P. Ippen. "How to Measure the Amplitude and Phase of Ultrashort Light Pulses with an Autocorrelator and a Spectrometer."
- Ramaswamy-Paye, M., and J.G. Fujimoto. "Compact Dispersion-Compensating Geometry for Kerr-Lens Modelocked Femtosecond Lasers."
- Shirasaki, M., C.R. Doerr, I. Lyubomirsky, and H.A. Haus. "Harmonically Modelocked Fiber Laser with Hybrid Gain."
- Wong, N.C., D. Lee, and L.R. Brothers. "Optical Frequency Measurement and Synthesis Using Nonlinear Optical Techniques."
- Dagstuhl Workshop on Code Generation*, First, Schloss Dagstuhl, Wadern, Germany, August 29-September 6, 1994.
- Liao, S.Y., S. Devadas, and K. Keutzer. "On Code Size Minimization Using Data Compression Techniques."
- Department of Electrical Engineering Seminar*, Madison, Wisconsin, January 14-18, 1994.
- Bekefi, G. "Free Electron Research at MIT."
- Design Automation Conference*, 31st, San Diego, California, June 6-10, 1994.
- Bhagwati, V., and S. Devadas. "Automatic Verification of Pipelined Microprocessors."
- Monteiro, J., S. Devadas, and B. Lin. "A Methodology for Efficient Estimation of Switching Activity in Sequential Logic Circuits."
- Silveira, L.M., I.M. Elfadel, J.K. White, M. Chilukuri, and K.S. Kundert. "An Efficient Approach to Transmission Line Simulation Using Measured or Tabulated S-parameter Data."
- Silveira, L.M., I.M. Elfadel, M. Chilukuri, K.S. Kundert, and J.K. White. "Efficient Frequency-Domain Modeling and Circuit Simulation of Transmission Lines."
- Device Research Conference*, 52nd Annual, Boulder, Colorado, June 20-22, 1994.
- Berthold, G., E. Zanoni, M. Manfredi, M. Pavesi, C. Canali, J.A. del Alamo, and S.R. Bahi. "Electroluminescence and Gate Current Components of InAlAs/InGaAs HFETs."
- Electrical Performance of Electronic Packaging Meeting*, Third, Monterey, California, November 2-4, 1994.
- Chou, M., and J.K. White. "A Multipole-accelerated Boundary-element Approach to Transient Simulations of Three-dimensional Integrated Circuit Interconnect."
- Silveira, L.M., M. Kamon, and J. White. "Direct Computation of Reduced-order Models for Circuit Simulation of 3-D Interconnect Structures."
- Electronic Components and Technology Conference*, Washington, DC, May 1-4, 1994.
- Silveira, L.M., M. Kamon, and J.K. White. "Algorithms for Coupled Transient Simulation of Circuits and Complicated 3-D Packaging."
- European Conference on Computer Vision*, Third, Stockholm, Sweden, May 1994.
- Elfadel, I.M. "On the Convergence of Relaxation Labeling Processes."
- European Physical Society's Conference on Controlled Fusion and Plasma Physics*, 21st, Montpellier, France, June 27-July 1, 1994.
- Ram, A.K., A. Bers, V. Fuchs, and S.D. Schultz. "Current Drive by the Combination of Lower Hybrid and ICRF Waves."
- Ram, A.K., C.C. Chow, and A. Bers. "Saturation of SRS by Spatiotemporal Chaos in Coupled Langmuir Decay."
- European Quantum Electronics Conference*, Fifth, Amsterdam, The Netherlands, August 28-September 2, 1994.
- Fujimoto, J.G., J.A. Izatt, M.R. Hee, B. Bouma, E.A. Swanson, C.P. Lin, and C.A. Puliafito. "Biological Imaging Using Optical Coherence Tomography and Microscopy."

- European Science Foundation Study Centre Workshop on Nonlinear Optics and Guided Waves*, Edinburgh, Scotland, August 1-20, 1994.
- Moore, J.D., W.S. Wong, and H.A. Haus. "Overcoming Limitations to High Bit-Rate Soliton Transmission and Storage."
- European Speech Communication Association/IEEE Workshop on Speech Synthesis*, Second, New Paltz, New York, September 12-15, 1994.
- Wilhelms-Tricarico, R., and J.S. Perkell. "Biomechanical and Physiologically Based Speech Modeling."
- Integrated Photonics Research Topical Meeting*, San Francisco, California, February 17-19, 1994.
- Chen, J.C., and S. Jungling. "Efficient Eigenmode Calculations Using Imaginary-distance Beam Propagation Method."
- Ferrera, J., J.N. Damask, V.V. Wong, H.I. Smith, and H.A. Haus. "High-Coherence QWS Gratings for Optoelectronic Devices: Why Spatial-Phase-Locked E-Beam Lithography is Necessary."
- International Clinical Phonetics and Linguistics Association Conference and American Speech and Hearing Association Conference*, New Orleans, Louisiana, November 13-21, 1994.
- Chang, H.-P. "Speech Input for Dysarthric Computer Users."
- International Conference on Computer-Aided Design*, San Jose, California, November 7-10, 1994.
- Alidina, M., J. Monteiro, S. Devadas, A. Ghosh, and M. Papaefthymiou. "Precomputation-Based Sequential Logic Optimization for Low Power."
- Lin, B., and S. Devadas. "Synthesis of Hazard-Free Multilevel Logic Under Multiple-Input Changes from Binary Decision Diagrams."
- Yun, K., B. Lin, D. Dill, and S. Devadas. "Performance-Driven Synthesis of Asynchronous Controllers."
- International Conference on InP and Related Compounds*, Santa Barbara, California, March 1994.
- Choi, W.Y., V.V. Wong, J.C. Chen, H.I. Smith, and C.G. Fonstad. "Design and Fabrication Using X-ray Lithography of Ridge-Waveguide Distribution Feedback Structures on InP."
- International Conference on Laser Applications in Life Sciences*, Fifth, Minsk, Belarus, June 28-July 2, 1994.
- Fujimoto, J.G., J.A. Izatt, M.R. Hee, B. Bouma, E.A. Swanson, C.P. Lin, and C.A. Puliafito. "Biological Imaging Using Optical Coherence Tomography and Microscopy." (plenary session)
- International Conference on Molecular Beam Epitaxy*, Eighth, Osaka, Japan, August 29-September 2, 1994.
- Fisher, P.A., E. Ho, J.L. House, G.S. Petrich, L.A. Kolodziejski, J. Walker, and N.M. Johnson. "P- and N-type Doping of ZnSe: Effects of Hydrogen Incorporation."
- International Conference on Spoken Language Processing*, Yokohama, Japan, September 18-22, 1994.
- Johnson, M. "Automatic Context-Sensitive Measurement of the Acoustic Correlates of Distinctive Features at Landmarks."
- International Conference on Tactile Aids, Hearing Aids and Cochlear Implants*, Third, Miami, Florida, May 2-5, 1994.
- Beaugard, G.L., W.M. Rabinowitz, H.Z. Tan, and N.I. Durlach. "Amplitude and Frequency Resolution for Motional Stimulation."
- Delhorne, L.A., C.M. Reed, and N.I. Durlach. "Current Results of a Field Study of Tactile Aid Users."
- Rabinowitz, W.M., J.M. Besing, C.M. Reed, and L.A. Delhorne. "Tactile and Auditory Measures of Amplitude Modulation Discrimination."
- Reed, C.R., S. Bratakos, L.A. Delhorne, and G. Denesvich. "A Comparison of Auditory and Tactile Presentation of a Single-Band Envelope Cue as a Supplement to Speechreading."
- Tan, H.Z. "A Study of the Tactual Perception of Motor Input Sequences."
- International Conference on VLSI Design*, Seventh, Calcutta, India, January 5-8, 1994.
- Bamji, C.S., and J. Allen. "GLOVE: A Graph-Based Layout Verifier."
- International Geoscience and Remote Sensing Symposium*, Pasadena, California, August 8-12, 1994.

- Cabrera-Mercader, C.R., and D.H. Staelin. "Passive Microwave Humidity Profile Retrievals Using Neural Networks."
- Nghiem, S.V., R. Kwok, S.H. Yueh, J.A. Kong, M.A. Tassoudji, C.C. Hsu, A.J. Gow, and D.K. Perovich. "Polarimetric Backscattering Signatures from Thin Saline Ice Under Controlled Laboratory Conditions."
- Rosenkranz, P.W. "A Rapid Transmittance Algorithm for Microwave Sounding Frequencies."
- Schwartz, M.J., J.W. Barrett, P.W. Fieguth, P.W. Rosenkranz, M.S. Spina, and D.H. Staelin. "Passive Microwave Imagery of a Tropical Storm Near 118 GHz."
- Schwartz, M.J., J.W. Barrett, P.W. Rosenkranz, and D.H. Staelin. "Atmospheric Transmittance Measurements Near 118 GHz."
- Spina, M.S., M.J. Schwartz, D.H. Staelin, and A.J. Gasiewski. "Application of Multilayer Feedforward Neural Networks to Precipitation Cell-Top Altitude Estimation."
- Yang, Y.E., H.T. Ewe, C.C. Hsu, L. Wang, S.E. Shih, K.H. Ding, J.A. Kong, R.T. Shin, H. Nguyen, T. Nguyen, J.Y. Ho, and K. O'Neill. "A GIS-Driven Interactive RAdar Image Simulation Using EMSARS Model."
- International RF Advanced Tokamak Workshop*, Seventh, Boulder, Colorado, April 6-8, 1994.
- Ram, A.K., A. Bers, V. Fuchs, and S. Schultz. "Enhancing Lower Hybrid Current Drive Efficiency with Fast Alfvén Waves and Ion-Bernstein Waves."
- International Scanning Microscopy Conference*, Toronto, Canada, May 7-12, 1994.
- Cho, K., and J.D. Joannopoulos. "Tip-induced Modifications in STM and AFM."
- International Sherwood Fusion Theory Conference*, Dallas, Texas, March 14-16, 1994.
- Coppi, B., L.E. Sugiyama, and M. Greenwald. "Global Thermal Transport and Indications from the Alcator-CM Experiment."
- Detragiache, P., B. Coppi, S. Migliuolo, M. Nassi, and B. Rogers. "Advanced Fusion in ICRF Heated Plasmas."
- Migliuolo, S., B. Coppi, B. Rogers, and L. Zakharov. "Analysis of $m=1$ Mode Stability in D-T Plasmas with Fusion Alpha Particles."
- Ram, A.K., A. Bers, V. Fuchs, and S.D. Schultz. "Enhancing Lower Hybrid Current Drive with ICRF Waves."
- Sugiyama, L.E., and W. Park. "Separation of Plasma Pressure and Magnetic Field Evolution in a Two Fluid $m=1$ Reconnection Process."
- International Symposium on Electron, Ion and Photon Beams*, 38th, New Orleans, Louisiana, May 31-June 3, 1994.
- Burkhardt, M., H.I. Smith, D.A. Antoniadis, T.P. Orlando, M.R. Melloch, K.W. Rhee, and M.C. Peckerar. "Fabrication Using X-ray Nanolithography and Measurement of Coulomb Blockade in a Variable-sized Quantum Dot."
- Hector, S.D., V.V. Wong, H.I. Smith, M.A. McCord, A. Wagner, and K.W. Rhee. "Printability of sub-150 nm Features in X-ray Lithography: Theory and Experiments."
- Mondol, M., H. Li, G. Owen, and H.I. Smith. "Uniform-Stress Tungsten on X-ray Mask Membranes via He-Backside Temperature Homogenization."
- Wong, V.V., J. Ferrera, J. Damask, J. Carter, E. Moon, H.A. Haus, H.I. Smith, and S. Rishton. "Spatial-Phase Locked E-Beam Lithography and X-ray Lithography for Fabricating First-Order Gratings on Rib Waveguides."
- Yang, I.Y., H. Hu, L.T. Su, V.V. Wong, M. Burkhardt, E. Moon, J. Carter, D.A. Antoniadis, H.I. Smith, K.W. Rhee, and W. Chu. "High Performance Self-Aligned Sub-100 nm MOSFETs Using X-ray Lithography."
- International Symposium on Guided-Wave Optoelectronics: Device Characterization, Analysis and Design*, Brooklyn, New York, October 26-28, 1994.
- Chen, J.C., H.A. Haus, J.N. Winn, and J.D. Joannopoulos. "Narrow-band Optical Filters from Photonic Band Gap Gratings."
- Haus, H.A., J.N. Damask, and M.J. Khan. "Distributed Feedback Channel Dropping Filters."
- International Symposium on Integrated Optics Conference on Nanofabrication Technologies and Device Integration*, Lindau, Germany, April 11-15, 1994.
- Damask, J.N., J. Ferrera, V.V. Wong, H.I. Smith, L.A. Kolodziejski, and H.A. Haus. "Limitations and Solutions for the Use of Integrated QWS-DBR Resonators in WDM Applications."

- International Ultrafast Phenomena Conference*, Ninth, Dana Point, California, May 2-6, 1994.
- Bouma, B., A. Gouveia-Neto, J. Russell, R. Sierra, J.A. Izatt, U. Keller, and J.G. Fujimoto. "Passive Modelocking of a Flashlamp Pumped Ti:Al₂O₃ Laser."
- Sun, C.-K., B. Golubovic, H.K. Choi, C.A. Wang, G.D. Sanders, C.J. Stanton, and J.G. Fujimoto. "Femtosecond Spectral Hole Burning in InGaAs/AlGaAs Strained-Layer Single-Quantum-Well Diode Lasers."
- International Union of Radio Science Meeting*, Seattle, Washington, June 20-24, 1994.
- Yang, Y.E., M.A. Tassoudji, H.T. Ewe, J.A. Kong, and G.J. Markey. "Examination of Electromagnetic Interference to Civil Aviation GPS Receivers."
- International Workshop on Low Power Design*, Napa, California, April 24-27, 1994.
- Alidina, M., J.S. Monteiro, S. Devadas, A. Ghosh, and M. Papaefthymiou. "Precomputation-Based Sequential Logic Optimization for Low Power."
- Monteiro, J., S. Devadas, B. Lin, C-Y. Tsui, M. Pedram, and A.M. Despain. "Exact and Approximate Methods of Switching Activity Estimation in Sequential Logic Circuits."
- Tan, C.H., and J. Allen. "Minimization of Power in VLSI Circuits Using Transistor Sizing, Input Ordering, and Statistical Estimation."
- International Workshop on Numerical Modeling of Process and Devices for Integrated Circuits V*, Honolulu, Hawaii, June 5-6, 1994.
- Rahmat, K., J. White, and D.A. Antoniadis. "A Galerkin Method for the Arbitrary Order Expansion in Momentum Space of the Boltzmann Equation Using Spherical Harmonics."
- Yie, H., X. Cai, and J. White. "Analysis of 3-D Micro-Electro-Mechanical Structures. Convergence Properties of Relaxation Versus the Surface-Newton Generalized-Conjugate Residual Algorithm for Self-consistent Electro-mechanical."
- Istanbul Technical University Statistical Physics Days*, Istanbul, Turkey, July 14-15, 1994.
- Falicov, A., and A.N. Berker. "Finite-Temperature Phase Diagram of the tJ Model: Renormalization-Group Theory."
- IEEE Digital Signal Processing Workshop*, Yosemite, California, October 3-5, 1994.
- Lam, W.M., and G.W. Wornell. "Multiscale Synthesis and Analysis of Fractal Renewal Processes."
- IEEE International Conference on Acoustics, Speech, and Signal Processing*, Adelaide, Australia, April 18-23, 1994
- Apostolopoulos, J.G., A. Pfajfer, H.M. Jung, and J.S. Lim. "Position-Dependent Encoding."
- Cheung, S., and P. Monta. "Low-Rate Audio Coder with Hierarchical Filterbanks and Lattice Vector Quantization."
- Elfadel, I.M. "Approximate Covariance Function for Gray-Level Gibbs Random Fields."
- IEEE International Conference on Plasma Science*, 21st, Santa Fe, New Mexico, June 6-8, 1994.
- Bekefi, G., B. Chen, I. Mastovsky, and P. Volfbeyn. "Experimental Studies of a High Gradient RF Accelerating Structure Driven by a 33 GHz Free Electron Laser Amplifier."
- Joint Automatic Target Recognizer Systems and Technology Conference IV and Imaging Understanding Workshop*, Monterey, California, November 14-17, 1994.
- Fung, I., and J.H. Shapiro. "Multiresolution Laser Radar Range Profiling with the Expectation-Maximization Algorithm."
- Lawrence Livermore National Laboratory Colloquium*, Livermore, California, April 8, 1994.
- Hewitt, J.N. "Gravitational Lenses, Time Delays, and Hubble's Constant."
- Materials Research Society*, Spring Meeting, San Francisco, California, April 4-8, 1994.
- Ho, E., P.A. Fisher, J.L. House, C.A. Coronado, G.S. Petrich, L.A. Kolodziejski, M.S. Brandt, and N.M. Johnson. "P- and N-Type Doping of ZnSe Using GSMBE."
- Lu, K., P.A. Fisher, E. Ho, J.L. House, C.A. Coronado, G.S. Petrich, and L.A. Kolodziejski. "GSMBE of ZnSe on (In,Ga)P."
- Micro- and Nano-Engineering Meeting*, Davos, Switzerland, September 26-29, 1994.
- Burkhardt, M., S. Silverman, H.I. Smith, D.A. Antoniadis, K.W. Rhee, and M.C. Peckerar. "Gap Control in the Fabrication of Quantum-Effect Devices Using X-ray Nanolithography."

National Center for Integrated Photonics Workshop, Princeton, New Jersey, July 17-19, 1994.

Ippen, E.P. "Femtosecond Dynamics in Semiconductor Optical Amplifiers."

National Radio Science Meeting, Boulder, Colorado, January 5-8, 1994.

Johnson, J.T., J.A. Kong, R.T. Shin, and L. Tsang. "Theory and Experiments in Polarimetric Passive Remote Sensing."

National Research Council Meeting, Washington, DC, June 18, 1994.

Joannopoulos, J.J. "Photonic Crystals."

Neural Information Processing Systems Conference, Vail, Colorado, December 1994.

Wyatt, J.L., Jr., and I.M. Elfadel. "Time-Domain Solutions of Oja's Equations."

Neural Prosthesis Workshop, 25th, Washington, DC, October 20-21, 1994.

Wyatt, J.L., and J.F. Rizzo. "Retinal Implant." (poster session)

New England Regional Quasar/AGN Meeting, Fourth, Brandeis University, Waltham, Massachusetts, May 6, 1994.

Hewitt, J.N. "Gravitational Lenses - Observations."

Optical Fiber Communication Conference, San Jose, California, February 20-25, 1994.

Damask, J.N., V.V. Wong, J. Ferrera, H.I. Smith, and H.A. Haus. "High-coherence QWS Gratings for Optoelectronic Devices: Why Spatial-phase-locked E-beam Lithography is Necessary."

Optical Society of America Meeting, Annual, Dallas, Texas, October 2-7, 1994.

Chapman, M.S., C.R. Ekstrom, J. Schmiedmayer, T.D. Hammond, S. Wehinger, and D.E. Pritchard. "Interferometry with Atoms and Molecules." (talk)

Chen, J.C., and C. Seo. "Novel Reduction of Losses in Bent Waveguides."

Davis, K.B., M.-O. Mewes, M.A. Andrews, and W. Ketterle. "Transfer of Laser-Cooled Atoms into a Magnetic Trap."

Davis, K.B., M.-O. Mewes, P. Yesley, M.A. Joffe, D.E. Pritchard, and W. Ketterle. "A

Spin-Flip Zeeman Slower for the Production of Intense Slow Sodium Beams."

Haus, H.A. "From Classical to Quantum Noise."

Shapiro, J.H. "An Eclectic Tour of Quantum Optical Communications."

Tamura, K.R., H.A. Haus, and E.P. Ippen. "Femtosecond Fiber Lasers."

Plasma Fusion Seminar, Fusion Research Center, Austin, Texas, March 22, 1994.

Sugiyama, L.E. "Nonlinear Magnetic Reconnection and Two Fluid Models."

Progress in Electromagnetics Research Symposium, Noordwijk, the Netherlands, July 11-15, 1994.

Hsu, C.C., J.A. Kong, T. Le Toan, S. Paloscia, and P. Pampaloni. "Microwave Emission and Back-scattering from Crops."

Scire-Scapuzzo, F., C.C. Hsu, L. Wang, J.A. Kong, T. Le Toan. "Inversion of Biomass of Pine Forest Using Theoretical Models."

Tsang, L., Z. Chen, G. Zhang, K.H. Ding, C. Hsu, and J.A. Kong. "Microwave Scattering by Vegetation Based on Wave Approach."

Radio Astronomy and Geodesy Group Meeting, Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts, March 5, 1994.

Hewitt, J.N. "Detecting Astronomical Radio Transients."

Speech Research Symposium, 14th, Baltimore, Maryland, June 22-23, 1994.

Verbout, S.M. "Signal Enhancement for Automatic Recognition of Noisy Speech."

Statistical Mechanics Meeting, 71th, New Brunswick, New Jersey, May 11-13, 1994.

Aalberts, D.P., and A.N. Berker. "Spin-Wave Bound-State Energies from an Ising Model."

Falicov, A., and A.N. Berker. "A Correlated Random-Chemical-Potential Model for the Phase Transitions of Helium Mixtures in Porous Media."

Hui, K., and A.N. Berker. "Expression for the Superantiferromagnetic Boundary of the Ising Model with Nearest- and Next-Nearest-Neighbor Interactions on the Square Lattice."

Steen-Hall Eye Institute Meeting, Shreveport, Louisiana, January 31-February 1, 1994.

- Wyatt, J.L., Jr. "Retinal Implant Project with Dr. Joseph Rizzo of Massachusetts Eye and Ear Infirmary."
- Symposium on VLSI Technology*, Honolulu, Hawaii, June 7-9, 1994.
- Herrmann, F.P., and C.G. Sodini. "A 256-Element Associative Parallel Processor."
- Hu, H., L.T. Su, I.Y. Yang, D.A. Antoniadis, and H.I. Smith. "Channel and Source/Drain Engineering in High-Performance Sub-0.1 μm NMOSFETs Using X-ray Lithography."
- Synopsis Workshop on Embedded Systems*, Berkeley, California, January 19-25, 1994.
- Devadas, S. "Retargetable Code Generation."
- Joannopoulos, J.D. "Ab-initio Statistical Mechanics."
- SEMATECH Company*, Austin, Texas, February 17, 1994.
- McIlrath, M.B. "SEMATECH Workbench for Integrated Modelling Meeting."
- SEMATECH Company*, Austin, Texas, May 4, 1994.
- Troxel, D.E. "Computer Integrated Manufacturing Application Framework Review."
- SPIE Conference on Laser Beams*, San Diego, California, June 16-24, 1994.
- Bekefi, G., B. Chen, M.E. Conde, I. Mastovsky, K. Ricci, C.J. Taylor, and P. Volfbeyn. "Observations of Frequency Chirping and Phase of a Free Electron Laser Amplifier."
- Catrasvas, P., W. Hu, C. Chen, I. Mastovsky, and G. Bekefi. "Experimental Studies of the MIT 3.3 GHz Relativistic Klystron Amplifier."
- Larrabee, J. V. Baisley, R. Huffman, R. Meade, and J.D. Joannopoulos. "Detectivity of a UB-B Photodiode."
- Stoner, R., J. Blastos, and G. Bekefi. "Radiation Studies Using the MIT Microwiggler for Free Electron Lasers."
- SPIE International Society for Optical Engineering Conference*, Los Angeles, California, January 22-29, 1994.
- Catrasvas, P., W. Hu, C. Chen, I. Mastovsky and G. Bekefi. "Studies of the MIT 3.3 GHz Relativistic Klystron Amplifier."
- Chen, C., G. Bekefi, W. Hu, and P. Catrasvas. "Advanced Two-Stream Relativistic Klystron Amplifier Research."
- Hu, Q., J.H. Smet, and C.G. Fonstad. "Terahertz Lasers Using Quantum-well Structures." (invited talk)
- Hu, Q., R. Gupta, D. Terpstra, G.J. Gerritsma, and H. Rogalia. "Response of High-Tc Ramp-type Josephson Junctions to Near-millimeter-wave Radiation."
- Izatt, J.A., M.R. Hee, D. Huang, E.A. Swanson, C.P. Lin, J.S. Schuman, C.A. Puliafito, and J.G. Fujimoto. "In Vivo Ophthalmic Imaging with Optical Coherence Tomography."
- Jerby, E., and G. Bekefi. "Traveling-Wave Cyclotron Maser Amplifier and Oscillator Experiments."
- Ricci, K., P. Volfbeyn, B. Chen, and G. Bekefi. "Observations of Frequency Chirping and Spatial Phase Variations of a Raman, Free-Electron Laser Amplifier."
- Wong, N.C., D. Lee, and L.R. Brothers. "CW Phase-locked Optical Parametric Oscillator as a Tunable Source for Terahertz Radiation."
- Technologies for Intelligent Vehicle Highways Conference*, Boston, Massachusetts, November 1994.
- Masaki, I. "Vehicle-Based Vision Sensors for Intelligent Highway Systems."
- The Future of Spectroscopy: From Astronomy to Biology Meeting*, Quebec, Canada, September 1994.
- Ketterle, W. "Cooling and Trapping of Neutral Atoms."
- Tokamak Physics Experiment Physics Meeting*, Princeton, New Jersey, September 11-12, 1994.
- Ram, A.K., A. Bers, S. Schultz, and V. Fuchs. "Current Drive Synergism in TPX."
- Towards Teraflop Computing Conference*, Baton Rouge, Louisiana, February 9-12, 1994.
- Cho, K., and J.J. Joannopoulos. "The Enchanting World of Surfaces."
- U.S. Coast Guard Academy Lecture*, New London, Connecticut, February 15, 1994.
- Hewitt, J.N. "Gravitational Lenses: A New Tool for Astrophysicists."

Ultrafast Phenomena Conference, Dana Point, California, May 2-6, 1994.

Bouma, B., A. Gouveia-Neto, J. Russell, R. Sierra, J.A. Izatt, U. Keller, and J.G. Fujimoto. "Passive Modelocking of a Flashlamp Pumped Ti:Al₂O₃ Laser."

Fujimoto, J.G. "Biological Spectroscopy and Medical Applications." (session)

Sun, C.-K., B. Golubovic, H.K. Choi, C.A. Wang, G.D. Sanders, C.J. Stanton, and J.G. Fujimoto. "Femtosecond Spectral Hole Burning in InGaAs/AlGaAs Strained-Layer Single-Quantum-Well Diode Lasers."

University of California Department of Astronomy Colloquium, Berkeley, California, April 7, 1994.

Hewitt, J.N. "Gravitational Lenses, Time Delays, and Hubble's Constant."

Virtual Reality Software and Technology Meeting, Singapore, August 23-26, 1994.

Foxlin, E., and N. Durlach. "An Inertial Head-Orientation Tracker with Automatic Drift Compensation for Use with HMD's."

Vocal Fold Physiology Conference, Eighth, Kurume, Japan, April 7-9, 1994.

Stevens, K.N., and H.M. Hanson. "Classification of Glottal Vibration from Acoustic Measurements."

Workshop for the Detection of Dark Matter, Berkeley, California, February 20-22, 1994.

Kleppner, D. "Application of Rydberg Atoms to the Detection of Microwave Photons."

Workshop on Quantum Communications and Measurements, Nottingham, United Kingdom, July 11-16, 1994.

Boivin, L., C.R. Doerr, K. Bergman, and H.A. Haus. "Quantum Noise Reduction Using a Nonlinear Sagnac Loop with Positive Dispersion."

Workshop on Quantum Field Theory of Cold Atoms, Boulder, Colorado, July 25-29, 1994.

Davis, K.B., M-O. Mewes, M.A. Joffe, and W. Ketterle. "Evaporative Cooling of Sodium Atoms."

Workshop on Singularities In Patterns and Collapse, Cork, Ireland, August 21-26, 1994.

Bouma, B., and J.G. Fujimoto. "Nonlinear Propagation Effects in Ultrashort Pulse Generation."

A.1.2 Published Meeting Papers

Bers, A. "Simple Physics of LH K_{||} Upshift Due to Density Gradient Along B₀" *Proceedings of the U.S.-Japan Workshop on RF Heating and Current Drive*, MIT Plasma Fusion Center, Cambridge, Massachusetts, November 15-17, 1994.

Berthold, G., M. Mastrapasqua, C. Canali, M. Manfredi, E. Zanoni, S.R. Bahl, and J.A. del Alamo. "Electron and Hole Real Space Transfer in InAlAs/InGaAs Heterostructure Device." *Proceedings of the 24th European Solid State Device Research Conference*, Edinburgh, Scotland, September 11-15, 1994.

Bhagwati, V., and S. Devadas. "Automatic Verification of Pipelined Microprocessors." *Proceedings of the 31st Design Automation Conference*, San Diego, California, June 1994.

Boning, D.S., and M.B. McIlrath. "Conceptual Graphs and Manufacturing Processes." *Proceedings of the Second International Conference on Conceptual Structures*, College Park, Maryland, August 15, 1994.

DiFilippo, F., V. Natarajan, M. Bradley, F. Palmer, and D.E. Pritchard. "Accurate Atomic Mass Measurements from Penning Trap Mass Comparisons of Individual Ions." *Proceedings of the Fourteenth International Conference on Atomic Physics*, Boulder, Colorado, July 31-August 5, 1994.

Elfadel, I.M. "Lyapunov Functions for Rotor Neural Networks." *Proceedings of the American Control Conference (ACC '94)*, Baltimore, Maryland, June 1994.

Fisher, P.A., E. Ho, G.S. Petrich, L.A. Kolodziejcki, M.S. Brandt, and N.M. Johnson. "N- and P-Type Doping of ZnSe Using Gas Source Molecular Beam Epitaxy." *Proceedings of the Material Research Society Symposium*, San Francisco, California, March 1994.

Kleppner, D. "Quantum Chaos and Laser Spectroscopy." *Proceedings of the Enrico Fermi International School of Physics*, Varenna, Italy, June 2-12, 1993.

- Masaki, I., S. Decker, A. Gupta, B.K.P. Horn, H.-S. Lee, D.A. Martin, C.G. Sodini, J.K. White, and J.L. Wyatt, Jr. "Cost-Effective Vision Systems for Intelligent Vehicles." *Proceedings of the IEEE International Intelligent Vehicles Symposium*, Paris, France, October 1994.
- Monteiro, J., J. Kukula, S. Devadas, and H. Neto. "Bitwise Encoding of Finite State Machines." *Proceedings of the 7th International Conference on VLSI Design*, Calcutta, India, January 1994.
- Monteiro, J., S. Devadas, and B. Lin. "A Methodology for Efficient Estimation of Switching Activity in Sequential Circuits." *Proceedings of the 31st Design Automation Conference*, San Diego, California, June 1994.
- Oppenheim, A.V., S.H. Nawab, G.C. Verghese, and G.W. Wornell. "Algorithms for Signal Processing." *Proceedings of the First Annual Rapid Prototyping of Application Specific Signal Processors Conference*, Arlington, Virginia, August 15-18, 1994.
- Polley, M.O., S.J. Wee, and W.F. Schreiber. "Hybrid Channel Coding for Multiresolution HDTV Terrestrial Broadcasting." *Proceedings of the IEEE International Conference on Image Processing*, Austin, Texas, November 1994.
- Pritchard, D.E., M.S. Chapman, C.R. Ekstrom, T.D. Hammond, J. Schmiedmayer, A. Lenef, R. Rubenstein, and S. Wehinger. "Interferometry with Atoms and Molecules." *Proceedings of the New York Academy of Sciences*, Baltimore, Maryland, June 18-22, 1994.
- Ram, A.K., A. Bers, V. Fuchs, and S.D. Schultz. "Heating and Current Drive by Mode-Converted Ion-Bernstein Waves." *Proceedings of the U.S.-Japan Workshop on RF Heating and Current Drive*, MIT Plasma Fusion Center, Cambridge, Massachusetts, November 15-17, 1994.
- Ram, A.K., A. Bers, V. Fuchs, and S.D. Schultz. "Enhanced Current Drive with Lower-Hybrid and Ion-Bernstein Waves." *Proceedings of the 15th International Atomic Energy Agency Conference on Plasma Physics and Controlled Nuclear Fusion*, Seville, Spain, September 26-October 1, 1994.
- Schattenburg, M.L., R.J. Aucoin, R.C. Fleming, I. Plotnick, J. Porter, and H.I. Smith. "Fabrication of High Energy X-ray Transmission Gratings for AXAF." *SPIE Proceedings 2280, EUV, X-ray and Gamma-Ray Instrumentation for Astronomy V*, San Diego, California, July 24-29, 1994.
- Silveira, L.M., M. Kamon, and J. White. "Direct Computation of Reduced-Order Models for Circuit Simulation of 3-D Interconnect Structures." *Proceedings of the 3rd Topical Meeting on Electrical Performance of Electronic Packaging*, Monterey, California, November 1994.
- Stevens, K.N., C.A. Bickley, and D.R. Williams. "Control of a Klatt Synthesizer by Articulatory Parameters." *Proceedings of the International Conference on Spoken Language Processing*, Yokohama, Japan, September 18-22, 1994.
- Tan, H.Z., M.A. Srinivasan, B. Eberman, and B. Cheng. "Human Factors for the Design of Force-Reflecting Haptic Interfaces." *Proc. ASME: Dynamic Systems and Control*. Ed. C.J. Radcliffe. Vol. 55-1, pp. 353-359.
- van der Zant, H.S.J., T.P. Orlando, S. Watanabe, and S.H. Strogatz. "Vortex Propagation in Discrete Josephson Rings." *Proceedings of the ICTP Workshop on Quantum Dynamics of Submicron Structures*, Trieste, Italy, June 13-July 1, 1994.
- Wee, S.J., M.O. Polley, and W.F. Schreiber. "A Scalable Source Coder for a Hybrid Transmission HDTV System." *Proceedings of the IEEE International Conference on Image Processing*, Austin, Texas, November 1994.
- Wilhelms-Tricarico, R., and J.S. Perkell. "Biomechanical and Physiologically Based Speech Modeling." *Proceedings of the Second European Speech Communication Association/IEEE Workshop on Speech Synthesis*, New Paltz, New York, September 12-15, 1994.
- Yang, Y.E., H.T. Ewe, C.C. Hsu, L. Wang, S.E. Shih, K.H. Ding, J.A. Kong, R.T. Shin, H. Nguyen, T. Nguyen, J.Y. Ho, and K. O'Neill. "A GIS-Driven Interactive Radar Image Simulation Using EMSARS Model." *IEEE Proc. IGARSS '94*.

A.2 Journal Articles

A.2.1 Published Journal Articles

- Abernathy, D.L., S. Song, K.I. Blum, R.J. Birgeneau, and S.G.J. Mochrie. "Chiral Melting of the Si(113) Reconstruction." *Phys. Rev. B* 49: 2691 (1994).
- Alidina, M., J. Monteiro, S. Devadas, A. Ghosh, and M. Papaefthymiou. "Precomputation-Based Sequential Logic Optimization for Low Power." *IEEE Trans. VLSI Syst.* 2(4): 426-436 (1994).
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- Arias, T.A., and J.D. Joannopoulos. "Electron Trapping and Impurity Segregation Without Defects: Ab initio Study of Perfectly Rebonded Grain Boundaries." *Phys. Rev. B* 49(7): 4525-4531 (1994).
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