

## **Appendices**

**Appendix A RLE Publications and Papers Presented**

**Appendix B Current RLE Personnel**

**Appendix C RLE Research Support Index**



# Appendix A. Publications and Meeting Papers

The first section of this bibliography includes papers and talks presented by RLE faculty, staff and students during 1989, and is in alphabetical order by conference name. Reprints of these papers may be obtained by contacting the authors directly. Section 2 lists published meeting papers by author; section 3 is a list of meeting papers submitted for publication.

Sections 4, 5 and 6 are alphabetical listings by author of journal articles that were published, accepted or submitted for publication. Book chapters by RLE authors are listed in section 7. Section 8 of this bibliography lists RLE general publications and technical reports, while section 9 is a list of RLE theses submitted during 1989.

## A.1 Meeting Papers Presented

*Acoustical Society of America*, 117th Meeting, Syracuse, New York, May 22-26, 1989.

Besing, J., M.J. Collins, and J.K. Cullen "Duration Effects on Vowel Perception by Hearing Impaired Listeners."

Delgutte, B. "Physiological Mechanisms of Masking and Intensity Discrimination."

Duchnowski, P., and P.M. Zurek. "Simulation of Sensorineural Hearing Loss."

Greenberg, J.E., and P.M. Zurek. "Reducing the Effects of Target Misalignment in an Adaptive Beamformer for Hearing Aids."

Payton, K.L., R.M. Uchanski, and L.D. Braida. "Speech Intelligibility as a Function of Environment and Speaking Style."

*Acoustical Society of America*, 118th Meeting, St. Louis, Missouri, November 27-December 1, 1989.

Greenberg, J.E., and P.M. Zurek. "Evaluation of a Real-Time Adaptive-Beamforming Hearing Aid."

*Acoustical Society of America*, Annual Meeting, Hawaii, November 14-18, 1989.

Grant, K.W., R.J. Renn, and J.S. Yu. "Amplitude Envelopes and Speechreading."

*Advanced Research in VLSI*, California Institute of Technology Conference, Pasadena, California, March 22, 1989.

Umminger, C.B., and S.P. DeWeerth. "Gradient Following in Analog VLSI."

*American Astronautical Society*, GSFL Symposium, Washington, DC, March 10, 1989.

Staelin, D.H. "Passive Microwave Technology: Present and Future."

*American Chemical Society*, National Meeting, Miami, Florida, September 10-15, 1989.

Ippen, E.P. "Recent Advances in Femtosecond Pulse Generation."

*American Otologic Society Meeting*, San Francisco, California, April 2-3, 1989.

Rosowski, J.J., P.J. Davis, S.N. Merchant, K.M. Donahue, and M.D. Coltrera. "Cadaver Middle-Ears as Models for Living Ears: Comparisons of Middle-Ear Input Immittance."

*American Physical Society Division of Fluid Dynamics*, 42nd Annual Meeting, Palo Alto, California, November 19-21, 1989.

Bers, A., G.S. Triantafyllou, and A.K. Ram. "Absolute Instabilities in Inhomogeneous Flows."

*American Physical Society Division of Plasma Physics*, 31st Annual Meeting, Anaheim, California, November 13-17, 1989.

Chow, C., V. Fuchs, and A. Bers. "An Analytic Theory of ICRF Heating."

Colborn, J.A., S.C. Luckhardt, K-I. Chen, R. Kirkwood, R. Parker, M. Porkolab, J. Squire, and J. Villaseenor. "Combined ECRH and LHCD Experiments on the Versator II Tokamak."

Englade, R., and B. Coppi. "Transport Coefficients for the Plasma Thermal Energy."

Kupfer, K., A. Bers, and A.K. Ram. "Guiding Center Stochasticity by Electrostatic Waves in Toroidal Geometry."

## Appendix A. RLE Publications

- Migliuolo, S., B. Coppi, F. Pegoraro, and F. Porcelli. "Stability of M=1 Modes in the Reconnecting Regime."
- Ram, A.K., and A. Bers. "Kinetic Ray Tracing in Toroidal Plasmas."
- Squire, J.P., S.C. Luckhardt, M. Porkolab, K.I. Chen, J. Colborn, R. Kirkwood, and J. Villaseenor. "Fast Magnetic Fluctuation Measurements of High Poloidal Beta Versator II Plasmas."
- Sugiyama, L.E. "Comparison of Thermal Transport in Ohmic Experiments."
- Sugiyama, L.E. "Time Dependent D-3He Ignition and Burn."
- Tao, Z.C., A. Bers, and A.K. Ram. "Correlational Effects on the Time-Evolution of Plasma-Beam System."
- Villasenor, J., M. Porkolab, S. Luckhardt, K-I. Chen, and S. Squire. "Lower-Hybrid Fast Wave Current Drive on the Versator II Tokamak."
- American Physical Society Meeting*, St. Louis, Missouri, March 20-24, 1989.
- Antoniadis, D.A. "Surface Superlattice and Quasi-One-Dimensional Devices in GaAs."
- Bagwell, P.F., and T.P. Orlando. "Finite Voltage Tunneling in Ballistic Devices."
- Field, S.B., J.H.F. Scott-Thomas, M.A. Kastner, H.I. Smith, and D.A. Antoniadis. "Conductance Oscillations Periodic in the Density of a One-Dimensional Electron Gas."
- Liu, C.T., K. Nakamura, D.C. Tsui, K. Ismail, D.A. Antoniadis, and H.I. Smith. "Far-Infrared and Magneto-Capacitance Measurements on GaAs/AlGaAs Lateral Surface Superlattice."
- Scott-Thomas, J.F., S.B. Field, M.A. Kastner, D.A. Antoniadis, and H.I. Smith. "Periodic Oscillations in the Conductance of Si MOSFETs."
- Smith, H.I. "X-Ray Lithography and Nanostructure Fabrication."
- Walrod, D.B., S. Auyang, P.A. Wolff, R.E. Nahory, J.P. Harbison, L.T. Florez. "Four-Wave Mixing in S-Doped GaAs."
- American Physical Society Meeting*, Baltimore, Maryland, April 30 - May 4, 1989.
- Welch, G.R. "Chaos and a Small Quantum System: Experiments in Rydberg Atom Diamagnetism."
- American Society of Mechanical Engineers*, Winter Annual Meeting, San Francisco, California, December 10-15, 1989.
- Hagelstein, P. "Coherent Fusion Theory."
- American Speech, Language and Hearing Association*, St. Louis, Missouri, November 17-20, 1989.
- Besing, J., M.J. Collins, and J.K. Cullen. "Vowel Preference and Identification Behavior: Normal-Hearing and Hearing-Impaired Listeners."
- American Vacuum Society*, Boston, Massachusetts, October, 1989.
- Schulberg, M.T., M. McGonigal, D.J. Gladstone, K.B. Laughlin, and S.T. Ceyer. "The Etching of Si(100) with a Molecular Beam of F<sub>2</sub>."
- Association for Research in Otolaryngology*, 12th Mid-Winter Research Meeting, St. Petersburg, Florida, February 5-9, 1989.
- Dynes, S.B.C., and B. Delgutte. "Phase Locking of Auditory-Nerve Responses to Electric Sinusoidal Stimulation of the Cochlea."
- Pang, X.D., and J.J. Guinan. "Effects of Stapedius Contractions on the Masking of Cat Auditory-Nerve-Fiber Responses to Tones."
- Association for Research in Vision and Ophthalmology*, Annual Meeting, Sarasota, Florida, April 30 - May 5, 1989.
- Fujimoto, J.G., B. Zysset, C.A. Puliafito, R. Birngruber, and T.F. Deutsch. "Picosecond Laser Photodisruption: Time Resolved Studies, Tissue Effects, and the Reduction of Collateral Damage."
- Bellcore and AT&T Laboratories Invited Seminar*, Holmdel, New Jersey, May 31 - June 1, 1989.
- Fujimoto, J.G. "Tunable Femtosecond Laser Techniques and Applications to all Optical Switching in Waveguide Devices."
- Boston Conference on Signal Processing*, Boston, Massachusetts, May 1989.
- Hardwick, J.C., and J.S. Lim. "Dual Excitation Speech Model."
- Canadian Workshop on X-ray Lithography*, First, Institute Nuclear Research Scientific, Quebec, Canada, April 27-29, 1989.
- Smith, H.I. "X-ray Nanolithography."

- Computer-Integrated Manufacturing of Integrated Circuits*, Semiconductor Research Corporation/Defense Advanced Research Projects Agency (DARPA), Fourth Annual, University of Michigan, Ann Arbor, Michigan, August 15-16, 1989.
- Troxel, D.E. "Process Control and the Cape Architecture."
- Condensed Matter Seminar*, University of Pennsylvania, Philadelphia, Pennsylvania, February 14, 1989.
- Fujimoto, J.G. "Femtosecond Processes in Semiconductors and Metals."
- Conference on Lasers and Electro-Optics*, Baltimore, Maryland, April 24-28, 1989.
- Anderson, K.K., M.J. LaGasse, H.A. Haus, J.G. Fujimoto, and C.A. Wang. "Femtosecond Pump-Probe Interferometry Studies of Optical Switching in AlGaAs Waveguides."
- Birngruber, R., V.P. Gabel, C.A. Puliafito, B. Zysset, and J.G. Fujimoto. "Intraocular Laser Tissue Interaction: Linear and Nonlinear Effects Produced with Nanosecond, Picosecond, and Femtosecond Pulses."
- Goodberlet, J.G., J. Wang, J.G. Fujimoto, P.A. Schulz, and S.R. Henion. "Modelocked Ti:Al<sub>2</sub>O<sub>3</sub> Laser with a Nonlinear Coupled External Cavity."
- Hall, K.L., E. Ippen, J. Mark, and G. Eisenstein. "Sub-Picosecond Gain Dynamics in InGaAsP Diode Laser Amplifiers."
- Ippen, E., and K.L. Hall. "Ultrafast Optical Nonlinearities in Semiconductor Optical Amplifiers."
- Keith, D.W., M.L. Schattenburg, H.I. Smith, and D.E. Pritchard. "Diffraction Gratings for Atoms."
- Liu, L.Y., J. Mark, H.A. Haus, and E.P. Ippen. "Additive Pulse Mode Locking: A Mechanism for Femtosecond Pulse Generation with Coupled Nonlinear Resonators."
- Pritchard, D.E., K. Helmerson, M. Xiao, and K.-X. Sun. "Radio Frequency Spectroscopy of Trapped Neutral Atoms."
- Schoenlein, R.W., J.G. Fujimoto, G.L. Eesley, and T.W. Capehart. "Femtosecond Studies of Image Potential Dynamics in Metals."
- Zysset, B., J.G. Fujimoto, T.F. Deutsch, R. Birngruber, and C.A. Puliafito. "Time-Resolved Studies and Biological Effects of Picosecond Pulse Optical Breakdown."
- Custom Integrated Circuits Conference*, San Diego, California, May 15-18, 1989.
- Nabors, K., and J. White. "A Fast Multipole Algorithm for Capacitance Extraction of Complex 3-D Geometries."
- Defense Advanced Research Projects Agency (DARPA) Contractor's Meeting*, Snowbird, Utah, April 2-4, 1989.
- Troxel, D.E. "A Process Flow Language."
- Defense Advanced Research Projects Agency (DARPA)/VLSI Contractor's Meeting*, Washington, DC, November 2-3, 1989.
- Nabors, K., and J. White. "A Multipole-Accelerated 3D Capacitance Extraction Algorithm."
- Department of Energy Contractor's Meeting*, Germantown, Maryland, December 5-6, 1989.
- Hagelstein, P.L. "Coherent Fusion Theory."
- Electron, Ion and Photon Beam Symposium*, Monterey, California, April 22-26, 1989.
- Dubner, A.D., and A. Wagner. "Mechanisms of Ion Induced Deposition of Gold."
- Engineering Foundation Conference on Implantable Auditory Prostheses*, Pitesti, Missouri, July 30 - August 4, 1989.
- Rabinowitz, W.M., and D.K. Eddington. "Effects of Channel-to-Electrode Mappings with the Symbion Cochlear Prosthesis."
- Engineering Foundation Conferences*, Molecular Electronics-Science and Technology, Keauhou Kona, Hawaii, February 19-24, 1989.
- Smith, H.I., K. Ismail, W. Chu, A. Yen, Y.C. Ku, and D.A. Antoniadis. "X-Ray Nanolithography and Quantum-Effect Electronics."
- Free Electron Laser Conference*, 11th International, Naples, Florida, August 28 - September 1, 1989.
- DiRienzo, A.C., G. Bekefi, C. Leibovitch, and B. Danly. "Cyclotron Autoresonance Maser Experiments."
- Future Directions for Lasers in Medicine and Surgery*, Palm Coast, Florida, February 26 - March 3, 1989.
- Zysset, B., T. Deutsch, C.A. Puliafito, and J.G. Fujimoto. "Time Resolved Studies and

## Appendix A. RLE Publications

- Biological Effects of Ultrashort Pulse Optical Breakdown."
- Gordon Conference on Dynamics of Gas-Surface Interactions*, Wolfeboro, New Hampshire, August 1989.
- Laughlin, K.B., D.J. Gladstone, M. McGonigal, and S.T. Ceyer. "Dynamics of the Reaction of F<sub>2</sub> with Si(100)."
- Gordon Conference on Nonlinear Optics and Lasers*, Wolfeboro, New Hampshire, July 24-28, 1989.
- Goodberlet, J., J. Wang, J.G. Fujimoto, and P.A. Schulz. "Femtosecond Passively Mode-locked Ti:Al<sub>2</sub>O<sub>3</sub> Laser Using a Nonlinear External Cavity."
- Haus, H.A., and Y. Lai. "Quantum Theory of Soliton Squeezing - a Linearized Approach."
- IBM Laboratories Physics Seminar*, Endicott, New York, April 10, 1989.
- Fujimoto, F.G. "Femtosecond Processes in Semiconductors and Metals."
- IBM Research Laboratory*, Yorktown Heights, New York, July 5, 1989.
- Fujimoto, J.G. "Tunable Femtosecond Laser Techniques and Applications to All Optical Switching in Waveguide Devices."
- IEEE AP-S International Symposium and URSI Radio Science Meeting*, San Jose, California, June 26-30, 1989.
- Ali, S.M., T.M. Habashy, and J.A. Kong. "Probe Excitation of a Center-Fed Circular Microstrip Antenna Employing a Stratified Medium Formulation."
- Habashy, T.M., S.M. Ali, and J.A. Kong. "Probe Excitation of a Center-Fed Circular Microstrip Antenna Employing the Weber Transform."
- Poh, S.Y., M.J. Tsuk, and J.A. Kong. "Transient Response of Sources Over Layered Media Using the Double Deformation Method."
- Tsuk, M.J., and J.A. Kong. "Response of Layered Media to Current Sources with Arbitrary Time Behavior."
- Tulintseff, A.N., S.M. Ali, and J.A. Kong. "Resonant Frequencies of Stacked Circular Microstrip Antennas."
- Information Sciences and Systems Conference*, John Hopkins University, Baltimore, Maryland, March 23-24, 1989.
- Standley, D.L. "Criteria for Robust Stability in a Class of Lateral Inhibition and Related Networks Coupled Through a Resistive Grid."
- Integrated Factory Management-Integrated Circuit Workshop*, Semiconductor Research Corporation, College Station, Texas, November 15-17, 1989.
- Heytens, M.L., and M.B. McIlrath. "An Object-Oriented Interface to a Relational Database System."
- Kashani, A. "A Reservation-based Scheduler."
- McIlrath, M.B., and D.S. Boning. "Integrating Process Design and Manufacture."
- International Conference on II-VI Semiconductors*, Berlin, West Germany, August 21-25, 1989.
- Gunshor, R.L., M. Kobayashi, L.A. Kolodziejski, and A.V. Nurmikko. "Wide Gap II-VI Heterostructures."
- International Conference on Crystal Growth*, Sendai, Japan, September 11-15, 1989.
- Gunshor, R.L., M. Kobayashi, L.A. Kolodziejski, A.V. Nurmikko, and N. Otsuka. "MBE of Wide Bandgap II-VI Compounds."
- International Conference on Hot Carriers in Semiconductors*, Sixth Annual, Boston, Massachusetts, April 1989.
- Stanton, C.J., D.W. Bailey, K. Hess, M.J. LaGasse, R.W. Schoenlein, and J.G. Fujimoto. "Femtosecond Studies of Inter-valley Scattering in GaAs and AlGaAs."
- International Conference on Laser Spectroscopy*, Ninth, Bretton Woods, New Hampshire, June 21-23, 1989.
- Pritchard, D.E. "Experimental Studies of Atom Diffraction and the Mechanical Forces of Light on Atoms."
- International Conference on Plasma Physics*, New Delhi, India, November 22-28, 1989.
- Ram, A.K., and A. Bers. "Kinetic Ray Tracing in Toroidal Geometry with Application to Mode-Converted Ion-Bernstein Waves."
- International Geoscience and Remote Sensing Symposium and 12th Canadian Symposium on Remote Sensing*, Vancouver, Canada, July 10-14, 1989.

- Melville, W.K., J.A. Kong, R.H. Stewart, W.C. Keller, A. Jessup, D. Arnold, and A. Slinn. "The Measurement and Modelling of Sea-State Bias in SAXON."
- International Laser Science Conference*, Stanford, California, August 27-31, 1989.
- Goodberlet, J., M.J. LaGasse, R.W. Schoenlein, M. Ulman, P. Schulz, J.G. Fujimoto. "Femtosecond Pulse Generation and Amplification in Ti:Al<sub>2</sub>O<sub>3</sub>."
- Haus, H.A. "Femtosecond Lasers with Fiber Optics."
- International Sherwood Theory Conference*, San Antonio, Texas, April 3-5, 1989.
- Chow, C., V. Fuchs, and A. Bers. "Analytic Studies of ICRF Heating."
- Kupfer, K., A. Bers, and A.K. Ram. "Transport of Charged Particles Interacting with Coherent Wave-Fields in a Tokamak Plasma."
- Ram, A.K., and A. Bers. "Ray Tracing of Mode-Converted Ion-Bernstein Waves in Toroidal Plasmas."
- Sugiyama, L.E. "Spatial Effects on the Ignition and Burn of D-<sup>3</sup>He Mixtures."
- International Symposium on Nanostructure Physics and Fabrication*, Texas A&M University, College Station, Texas, March 8-10, 1989.
- Smith, H.I., K. Ismail, W. Chu, A. Yen, Y.C. Ku, M.L. Schattenburg, and D.A. Antoniadis. "Fabrication of Quantum-Effect Electronic Devices Using X-Ray Nanolithography."
- International Test Conference*, Washington, D.C., August 28-30, 1989.
- Devadas, S. "Delay Test Generation for Synchronous Sequential Circuits."
- Devadas, S., H-K.T. Ma, and A.R. Newton. "Redundancies and Don't Cares in Sequential Logic Synthesis."
- International Union of Radio Science Commission H Meeting*, Boulder, Colorado, January 4-7, 1989.
- Han, H.C., and J.A. Kong. "Self-focusing of a Radio Wave Beam During the Trans-ionospheric Propagation."
- International Workshop on High-Level Synthesis*, Kennebunkport, Maine, October 15-18, 1989.
- Fogg, D.C. "Operator Selection: Two Approaches."
- International Workshop on the Physics of Semiconductor Devices*, Fifth, New Delhi, India, December 10-13, 1989.
- Allen, J. "Fast and Parallelizable Techniques for High Accuracy Transient Device Simulation."
- Interuniversity Micro-Electronics Center-International Federation for Information Processing International Workshop on Applied Formal Methods for Correct VLSI Design*, Houthalen, Belgium, November 13-16, 1989.
- Van Aelten, F., and J. Allen. "Efficient Verification of VLSI Circuits Based on Syntax and International Semantics."
- Lasers '89*, New Orleans, Louisiana, December 3-8, 1989.
- Bam, S., and R.L. Byer. "Moving Slab Laser."
- Braud, J.P. "Adiabatic Whisper-Gallery Mirrors for EUV and Soft X-Ray Laser Cavities."
- Materials Research Society*, Spring Meeting, San Diego, California, April 24-29, 1989.
- Gunshor, R.L., L.A. Kolodziejski, M. Kobayashi, A.V. Numikko, and N. Otsuka. "Wide Gap II-VI DMS Superlattices: MBE Growth and Characterization."
- Materials Research Society*, Fall Meeting, Boston, Massachusetts, November 27-December 2, 1989.
- Bennett, B.R., and J.A. del Alamo. "Index of Refraction Anysotropy in Mismatched InGaAs/InP Heterostructures Measured by Ellipsometry."
- McGonigal, M., M.T. Schulberg, D.J. Gladstone, K.B. Laughlin, and S.T. Ceyer. "Reactions of F<sub>2</sub> with Si(100)."
- Melngailis, J. "Focused Ion Beam Induced Deposition for X-ray Mask Repair."
- Microwave Landing System User Forum*, Eastern Region, New York, New York, October 22-24, 1989.
- Yang, Y-C.E. "Instrument Landing System/Microwave Landing System Frequency Management Assessment."
- Microwave Landing System User Forum*, Western Pacific Region, Honolulu, Hawaii, November 16, 1989.

## Appendix A. RLE Publications

- Yang, Y-C.E. "Instrument Landing System/Microwave Landing System Frequency Management Assessment."
- Military and Government Speech Technology Symposium*, Arlington, Virginia, November 13-15, 1989.
- Hardwick, J.C., and J.S. Lim. "A Real Time Implementation of a 4800 bps Improved Multi-Band Excitation Speech Coder."
- Mixed Signal Workshop*, Portland, Oregon, October 17, 1989.
- Kundert, K., and J. White. "Distortion Analysis of Switched-Capacitor Filters."
- NASECODE Conference*, Dublin, Ireland, June, 1989.
- Reichelt, M., and J. White. "Techniques for Switching Power Converter Simulation."
- National Radio Science Meeting*, University of Colorado, Boulder, Colorado, January 6, 1989.
- Han, H.C., and J.A. Kong. "Self-Focusing of a Radio Wave Beam During the Trans-ionospheric Propagation."
- Han, H.C., J.A. Kong, and T.M. Habashy. "VLF Beam Forming by a Phased Array in an Ionized Medium."
- Han, H.C., J.A. Kong, T.M. Habashy, and M.D. Grossi. "Principles of VLF Antenna Array Design in Magnetized Plasmas."
- New England Molecular Beam Epitaxy Workshop*, Fourth Meeting, Cambridge, Massachusetts, May 4, 1989.
- Bahl, S., W.J. Azzam, and J.A. del Alamo. "Fabrication of an InAlAs/n<sup>+</sup> – InGaAs MIDFET."
- Nonlinear Guided Wave Phenomena: Physics and Applications*, Topical Meeting, Houston, Texas, February 2-4, 1989.
- Haus, H.A. "The Nonlinear Interferometer."
- Shirasaki, M., and H.A. Haus. "Broadband Squeezing with Cotraveling Waves."
- North American Sea Ice Workshop*, University of Massachusetts, Amherst, Massachusetts, June 25-28, 1989.
- Nghiem, S.V., J.A. Kong, R.T. Shin, and H.A. Yueh. "Application of Three-Layer Random Medium Model to Polarimetric Remote Sensing of Snow and Sea Ice."
- Optical Fiber Conference*, Houston, Texas, February 1989.
- Donnelly, J.P., L.A. Molter, G.S. Hopcraft, R.E. Smith, and H.A. Haus. "Extinction Ratio in Optical Two-Guide  $\delta\beta$  Couplers."
- Optical Society of America*, Annual Meeting, Orlando, Florida, October 15-20, 1989.
- Haus, H.A. "Parametric Distributed Feedback Resonator and Unruh Radiation."
- Ippen, E.P. "Additive Pulse Modelocking."
- Ulman, M., R.W. Schoenlein, and J.G. Fujimoto. "Cascade High Repetition Rate Femtosecond Amplifier."
- Wong, N.C. "Optical Frequency Division using an Optical Parametric Oscillator."
- Optical Society of America Topical Meeting on Picosecond Electronics and Opto-Electronics*, Salt Lake City, Utah, March 7-12, 1989.
- Hall, K.L., E.P. Ippen, J. Mark, and G. Eisenstein. "Ultrafast Nonlinearities in InGaAsP Diode Laser Amplifiers."
- Physics and Chemistry of Semiconductor Interfaces Conference*, Bozeman, Montana, February 7-9, 1989.
- Alerhand, O.L., E. Kaxiras, J.D. Joannopoulos, G.W. Turner. "Model of Epitaxial Growth of GaAs on Si(100) - Nucleation at Surface Steps."
- Quantum Electronics and Laser Science Conference*, Baltimore, Maryland, April 1989.
- Keith, D.W., M.L. Schattenburg, H.I. Smith, and D.E. Pritchard. "Diffraction Gratings From Atoms."
- Radio Frequency Power in Plasmas*, Eighth Topical Conference, Irvine, California, May 1-3, 1989.
- Chow, C., A. Bers, and V. Fuchs. "Analytic Studies of ICRF Heating."
- Colborn, J., S.C. Luckhardt, J.P. Squire, K-I. Chen, R. Kirkwood, M. Porkolab, R. Parker, and J. Villaseenor. "Combined ECRH and LHCD Experiments on the Versator II Tokamak."
- Kirkwood, R.K., I.H. Hutchinson, S.C. Luckhardt, and J.P. Squire. "Measurement of Suprathermal Current Carriers and Momentum Relaxation by Electron Cyclotron Transmission."
- Kupfer, K., A. Bers, and A. Ram. "RF Induced Transport in Tokamak Plasmas."

*Remote Sensing Science Program*, Annual Workshop, Santa Barbara, California, January 31, 1989.

Kong, J.A. "Polarimetric Models."

*Rencontres de Moriond*, Les Arcs, Savoie, France, March 5-12, 1989.

Burke, B.F. "Gravitational Lenses and the Determination of Cosmological Constants."

*Rochester Conference on Coherence and Quantum Optics*, Sixth, University of Rochester, Rochester, New York, June 26-28, 1989.

Gentile, T.R., B.J. Hughey, T.W. Ducas, and D. Kleppner. "Experimental Study of Two-Photon Rabi Oscillations."

Ho, S-T., N.C. Wong, and J.H. Shapiro. "Self-Focusing Limitations on Squeezed State Generation in Two-Level Media."

Hughey, B.J., T.R. Gentile, T.W. Ducas, and D. Kleppner. "Atom-Photon Interaction Modified by a Microwave Cavity."

Pritchard, D.E., and B.G. Oldaker. "Light Forces and Atom Diffraction - An Illustrated Summary."

Shapiro, J.H., S.R. Shepard, and N.C. Wong. "A New Number-Phase Uncertainty Principal."

Shapiro, J.H., S.R. Shepard, and N.C. Wong. "Coherent Phase States and Squeezed Phase States."

*Sciences of Electronic Packaging Meeting*, IBM Corporation, Endicott, New York, May 2-3, 1989.

Ali, S.M. "Microwave Design Techniques in Leading Edge Computer Packaging."

*Signal Processing Conference*, Boston, Massachusetts, May 1989.

Hardwick, J.C., and J.S. Lim. "Dual Excitation Speech Model."

*SPIE Symposium on Lasers and Optics*, Los Angeles, California, January 15-20, 1989.

DiRienzo, A., G. Bekefi, C. Leibovitch, and B.G. Danly. "Radiation Measurements from a 35GHz Cyclotron Autoresonance Maser (CARM) Amplifier."

Fujimoto, J.G. "Femtosecond Lasers and Ultrafast Measurement Techniques."

Nurmikko, A.V., R.L. Gunshor, and L.A. Kolodziejski. "Excitons and Phonons in Widegap II-VI Compound Semiconductor Superlattices."

*Speech Research Symposium*, Oklahoma State University, Stillwater, Oklahoma, March 13-15, 1989.

Hardwick, J.C., and J.S. Lim. "Dual Excitation Speech Model."

*Symposium for Basic Research in a Clinical Environment*, Dedham, Massachusetts, July 5-7, 1989.

Delgutte, B. "Does Suppression Result in Masking or Unmasking?"

*Symposium on Electron, Ion and Photon Beams*, 33rd International, Monterey, California, May 30 - June 2, 1989.

Blauner, P.G., Y. Butt, J.S. Ro, C.V. Thompson, and J. Melngailis. "Focused Ion Beam Induced Deposition of Low Resistivity Gold Films."

Chu, W., A. Yen, K. Ismail, M.I. Shepard, H.J. Lezec, C.R. Musil, J. Melngailis, Y-C. Ku, J.M. Carter, and H.I. Smith. "Sub-100 nm X-ray Mask Technology Using Focused-Ion-Beam Lithography."

Ismail, K., D.A. Antoniadis, and H.I. Smith. "A Lateral-Surface-Superlattice Structure on GaAs/AlGaAs for Far-Infrared and Magneto-Capacitance Measurements."

Ismail, K., W. Chu, R.T. Tiberio, A. Yen, H.J. Lezec, M.I. Shepard, C.R. Musil, J. Melngailis, D.A. Antoniadis, and H.I. Smith. "Resonant Tunneling Across and Mobility Modulation Along Surface-Structured Quantum Wells."

Moel, A., M.L. Schattenburg, J.M. Carter, and H.I. Smith. "Microgap Control in X-ray Nanolithography."

*Symposium In Honor of N.Y.S. Kiang*, Dedham, Massachusetts, July 5-7, 1989.

Peake, W.T., J.J. Rosowski, and T.J. Lynch III. "The Cat's Middle Ear: Measurements, Models, and Predictions."

Rabinowitz, W., and D.K. Eddington. "Effects of Channel-to-Electrode Mappings with the Symbion Cochlear Prosthesis."

Rosowski, J.J., W.T. Peake, and N. Yang. "A Simple Model for Level-Dependent Growth Rates of Auditory Distortion."

## Appendix A. RLE Publications

- Transport Task Force Meeting*, Institute for Fusion Studies, University of Texas, Austin, Texas, January 11-13, 1989.
- Kupfer, K., A. Bers, and A.K. Ram. "Transport of Charged Particles Interacting with Coherent Wave-Fields in a Tokamak Plasma."
- Sugiyama, L.E. "Predictive Transport Code Analysis."
- US/Japan Workshop on Kinetic Modification of MHD Modes, Second Stability and Alpha Particles in Toroidal Systems*, Princeton University, Princeton, New Jersey, January 12, 1989.
- Luckhardt, S.C. "High Poloidal Beta Equilibria Generated by Means of Lower-Hybrid Current Drive."
- Workshop on Compound Semiconductor Materials and Devices*, Hilton Head, South Carolina, February 20-22, 1989.
- del Alamo, J.A., and W.J. Azzam. "A Floating-Gate Transmission-Line Model (FGTLM) Technique for Accurate Measurement of Source Resistance in HFETs."
- Workshop on Fracture Computations*, Gaithersburg, Maryland, September 6-8, 1989.
- Joannopoulos, J. "Total Energy Calculations in Solids."
- Workshop on X-ray Lithography*, Monterey, California, October 17-20, 1989.
- Smith, H.I. "X-ray Mask Technology."
- A.2 Published Meeting Papers**
- Ali, S.M., T.M. Habashy, and J.A. Kong. "Input Impedance of a Circular Microstrip Antenna Fed by an Eccentric Probe." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Antoniadis, D.A., K. Ismail, and H.I. Smith. "Lateral Surface Superlattices and Quasi-One-Dimensional Structures in GaAs." *Proceedings of the Science and Engineering of 1- and 0-Dimensional Semiconductors NATO Advanced Research Workshop*, Cadiz, Spain, March 29-April 1, 1989.
- Arnold, D.V., J.A. Kong, W.K. Melville, and R.W. Stewart. "Theoretical Prediction of EM Bias." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Ashar, P., S. Devadas, and A.R. Newton. "Optimum and Heuristic Algorithms for Finite State Machine Decomposition and Partitioning." *Proceedings of the International Conference on Computer-Aided Design*, Santa Clara, California, November 5-9, 1989.
- Bace, M.M., and J.S. Lim. "An Iterative Method for Designing Separable Wiener Filters." *Proceedings of the Second Acoustics, Speech, and Signal Processing Mini Conference*, Weston, Massachusetts, May 1989.
- Bamji, C.S., and J. Allen. "GRASP: A Grammar-Based Schmatic Parser." *Proceedings of the 26th Design Automation Conference*, Las Vegas, Nevada, June 1989.
- Batchelor, D.B., E.F. Jaeger, B.A. Carreras, H. Weitzner, K. Imre, C. Stevens, V. Fuchs, and A. Bers. "Full-Wave Modeling of Ion-Cyclotron Heating in Tokamaks." *Proceedings of the 12th International Atomic Energy Agency Conference on Plasma Physics and Controlled Nuclear Fusion*, Volume 1:611-620, IAEA-CN-50/E-II-5 (Vienna: International Atomic Energy Agency, 1989), Nice, France, October 12-19, 1988.
- Bekefi, G. "Coherent, Free Electron Radiation Sources." *Proceedings of the International Conference on Plasma Physics*, New Delhi, India, November 22-28, 1989.
- Blauner, P.G., J.S. Ro, Y. Butt, C.V. Thompson, and J. Melngailis. "Direct Writing of Metallic Submicron Features Using Focused Ion Beams." *Proceedings of the Materials Research Society Symposium*, 129:483 (1989).
- Borgeaud, M., J.A. Kong, R.T. Shin, and S.V. Nghiem. "Polarimetric Remote Sensing of Earth Terrain with Two-Layer Random Medium Model." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Bossi, D.E., W.D. Goodhue, and R.H. Rediker. "Reduced-Confinement GaAlAs Tapered Waveguide Antenna." *Technical Digest Series Vol. 4:80-83 of the Integrated and Guided Wave Optics Topical Meeting*, Houston, Texas, February 6-8, 1989. (Optical Society of America, Washington, DC).
- Chu, N.C., S.V. Nghiem, R.T. Shin, and J.A. Kong. "Phase Fluctuations of Waves Propagating Through a Random Medium." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.

- Clevenger, L.A., C.V. Thompson, and R.R. deAvillez. "Kinetics and Thermodynamics of Amorphous Silicide Formation in Nickel-/Amorphous-Silicon Multilayer Thin Films." *Proceedings of the Spring Materials Research Society Meeting*, San Diego, California, April 24-29, 1989.
- Clevenger, L.A., C.V. Thompson, and K-N. Tu. "Controlled and Explosive Reactions in Nickel/Silicon Multilayer Thin Films." *Proceedings of the Materials Research Society International Meeting on Advance Materials* 10:431, Tokyo, Japan, 1989.
- Crow, M., J. White, and M. Ilic. "Stability and Convergence Aspects of Waveform Relaxation Applied to Power System Simulation." *Proceedings of the IEEE International Symposium on Circuits and Systems*, Portland, Oregon, May 9-11, 1989.
- Devadas, S. "Approaches to Multi-Level Sequential Logic Synthesis." *Proceedings of the 26th Design Automation Conference*, Las Vegas, Nevada, June 1989.
- Devadas, S. "Delay Test Generation for Synchronous Sequential Circuits." *Proceedings of the International Test Conference*, Washington, DC, August 1989.
- Devadas, S. "Optimal Layout Via Boolean Satisfiability." *Proceedings of the International Conference on Computer-Aided Design*, Santa Clara, California, November 5-9, 1989.
- Devadas, S. "General Decomposition of Sequential Machines: Relationships to State Assignment." *Proceedings of the 26th Design Automation Conference*, Las Vegas, Nevada, June 1989.
- Devadas, S., and K. Keutzer. "Boolean Minimization and Algebraic Factorization Procedures for Fully Testable Sequential Machines." *Proceedings of the International Conference on Computer-Aided Design*, Santa Clara, California, November 5-9, 1989.
- Devadas, S., H-K.T. Ma, and A.R. Newton. "Easily Testable PLA-Based Finite State Machines." *Proceedings of the Fault Tolerant Computing Symposium*, Chicago, Illinois, June 1989.
- Devadas, S., H-K.T. Ma, and A.R. Newton. "Redundancies and Don't Cares in Sequential Logic Synthesis." *Proceedings of the International Test Conference*, Washington, DC, August 1989.
- Devadas, S., H-K.T. Ma, A.R. Newton, and A. Sangiovanni-Vincentelli. "The Relationship Between Logic Synthesis and Test." *Proceedings of the VLSI '89*, Munich, West Germany, August 1989.
- Dubner, A.D., and A. Wagner. "In-Situ Measurement of Ion Beam Induced Deposition of Gold." *Proceedings of the Materials Research Society Symposium*, 147:155 (1989).
- Early, K., M.L. Schattenburg, and H.I. Smith. "Absence of Resolution Degradation in X-ray Lithography for  $\lambda$  from 4.5nm to 0.83nm." *Proceedings of the International Conference on Microlithography, Microcircuit Engineering*, Cambridge, England, September 26-28, 1989.
- Feder, M., and J.S. Jaffe. "Limited-Angle Reconstruction from Noisy Data Using Clustering of the Solution Space." *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, Glasgow, Scotland, May 23-26, 1989.
- Feder, M., and E. Weinstein. "Sequential Algorithms FIR System Identification Based on the Kullback-Leibler Information Measure." *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, Glasgow, Scotland, May 23-26, 1989.
- Ghosh, A., S. Devadas, and A.R. Newton. "Test Generation for Highly Sequential Circuits." *Proceedings of the International Conference on Computer-Aided Design*, Santa Clara, California, November 5-9, 1989.
- Gonsalves, J.M., N. Otsuka, J.Qui, M. Kobayashi, R.L. Gunshor, and L.A. Kolodziejski. "Electron Microscope Study of the Initial Stage of Growth of ZnSe on GaAs." *Proceedings of the Materials Research Society Symposia*, San Diego, California, April 24-29, 1989.
- Gu, Q., Y.E. Yang, and J.A. Kong. "Transient Analysis of Frequency-Dependent Transmission Lines with Nonlinear Terminations." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Gunshor, R.L., L.A. Kolodziejski, M. Kobayashi, A.V. Nurmikko, and N. Otsuka. "Metastable Zincblende MnTe and MnSe: MBE Growth and Characterization." *Proceedings of the Materials Research Society Symposium* 151:141-149 (1989).

## Appendix A. RLE Publications

- Hagelstein, P.L. "Coherent Fusion Theory." *Proceedings of The American Society of Mechanical Engineers Winter Annual Meeting*, San Francisco, California, December 10-15, 1989.
- Han, H.C., J.A. Kong, and T.M. Habashy. "Far Field Pattern of a VLF Antenna Array in the Ionspheric Plasmas." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Hardwick, J.C., and J.S. Lim. "The Dual Excitation Speech Model." *Proceedings of the Second Acoustics, Speech, and Signal Processing Mini Conference*, Weston, Massachusetts, May 1989.
- Jaffe, J.S., and J.M. Richardson. "Code-Division Multiple Beam Imaging." *Proceedings of the Oceans '89 Conference*, Seattle, Washington, September 17-21, 1989.
- Kiang, J.F., S.M. Ali, and J.A. Kong. "Analysis of Dielectric Strip Waveguides Using Integral Equation Formulation." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Ku, Y.C., H.I. Smith, and I. Plotnik. "Low Stress Tungsten Absorber for X-ray Masks." *Proceedings of the International Conference Microlithography, Microcircuit Engineering*, Cambridge, England, September 26-28, 1989.
- Kupfer, K., A. Bers, and A. Ram. "RF Induced Transport in Tokamak Plasmas." *Proceedings of the American Institute of Physics Conference 190*, Irvine, California, May 1-3, 1989.
- Lam, C.W., S.M. Ali, and J.A. Kong. "A New Finite-Difference Time-Domain Grid Model for Microstrip Problems in Anisotropic Media." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Lee, C.F., R.T. Shin, J.A. Kong, and B.J. McCartin. "Finite Difference Time Domain Techniques for Two Dimensional Triangular Grids." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Lee, C.F., R.T. Shin, J.A. Kong, and B.J. McCartin. "Absorbing Boundary Conditions on Circular and Elliptic Boundaries." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Li, K., R.T. Shin, and J.A. Kong. "Radar Cross Section Prediction of Slots in Ground Planes Using Method of Moments." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Lim, H.H., H.A. Yueh, J.A. Kong, R.T. Shin, and J.J. van Zyl. "Contrast and Classification Studies of Polarimetric SAR Images for Remote Sensing of Earth Terrain." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Lin, F.C., H.A. Yueh, J.A. Kong, and R.T. Shin. "Correlation Function Study for Random Media with Multiphase Mixtures." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Lumsdaine, A., J. Wyatt, and I. Elfadel. "Parallel Distributed Networks for Image Smoothing and Segmentation in Analog VLSI." *Proceedings of the 28th IEEE Conference on Decision and Control*, Tampa, Florida, December 13-15, 1989.
- Melngailis, J. "Focused Ion Beam Lithography and Implantation." *Proceedings of the Eighth Biennial University/Government/Industry Microelectronics Symposium*, Westboro, Massachusetts, June 1989.
- Melngailis, J., and P.G. Blauner. "Focused Ion Beam Induced Deposition." *Proceedings of the Materials Research Symposium*, San Diego, California, April 24-29, 1989.
- Nabors, K., and J. White. "A Fast Multipole Algorithm for Capacitance Extraction of Complex 3-D Geometries." *Proceedings of the Custom Integrated Circuits Conference*, San Diego, California, May 15-18, 1989.
- Nghiem, S.V., and J.A. Kong. "Faraday Polarization Fluctuations in Transionospheric Polarimetric VLF Waves." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Nghiem, S.V., F.C. Lin, J.A. Kong, R.T. Shin, and H.A. Yueh. "Three-Layer Random Medium Model for Fully Polarimetric Remote Sensing of Geophysical Media." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Phillips, J.M., J.E. Palmer, N.E. Hecker, and C.V. Thompson. "The Effect of Annealing on the Structure of Epitaxial CaF<sub>2</sub> Films on Si(100)." *Proceedings of the Materials Research Society*

- Spring Meeting*, San Diego, California, April 24-29, 1989.
- Ram, A.K., and A. Bers. "Kinetic Ray Tracing in Toroidal Geometry with Application to Mode-Converted Ion-Bernstein Waves." *Proceedings of the 1989 International Conference on Plasma Physics*, New Delhi, India, pp. 57-60. Eds. A. Sen, and P.K. Law, 1989.
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- Sheen, D.M., S.M. Ali, M.D. Abouzahra, and J.A. Kong. "Analysis of Multiport Rectangular Microstrip Structures Using a Three Dimensional Finite Difference Time Domain Technique." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Smith, H.I., K. Ismail, W. Chu, A. Yen, Y.C. Ku, and D.A. Antoniadis. "X-ray Nanolithography and Quantum-Effect Electronics." *Proceedings of the Molecular Electronics-Science and Technology, Engineering Foundation Conferences*, Keauhou Kona, Hawaii, February 19-24, 1989.
- Smith, H.I., K. Ismail, M.L. Schattenburg, and D.A. Antoniadis. "Sub-100nm Electronic Devices and Quantum-Effects Research Using X-ray Nanolithography." *Proceedings of the International Conference Microlithography, Microcircuit Engineering*, Cambridge, England, September 26-28, 1989.
- Staelin, D.H. "Passive Microwave Sensing of the Atmosphere from Space." *Proceedings of the Microwave Radiometry and Remote Sensing Applications*, Florence, Italy, March 9-11, 1989.
- Standley, D.L. "Criteria for Robust Stability in a Class of Lateral Inhibition and Related Networks Coupled Through a Resistive Grid." *Proceedings of the Conference on Information Sciences and Systems*, Johns Hopkins University, Baltimore, Maryland, March 22-24, 1989.
- Standley, D.L. "Design Criteria Extensions for Stable Lateral Inhibition Networks in the Presence of Circuit Parasitics." *Proceedings of the IEEE International Symposium on Circuits and Systems*, Portland, Oregon, May 1989.
- Tsuk, M.J., and J.A. Kong. "The Frequency-Dependent Resistance of Conductors with Arbitrary Cross-Section." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Tulintseff, A.N., S.M. Ali, and J.A. Kong. "Input Impedance and Radiation Fields of a Probe-Fed Stacked Circular Microstrip Antenna." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Van Aelten, F., and J. Allen. "Efficient Verification of VLSI Circuits Based on Syntax and Denotational Semantics." *Proceedings of the Interuniversity Micro Electronics Center-International Federation for Information Processing*, Workshop on Applied Formal Methods for Correct VLSI Design. Leuven, Belgium, November 1989.
- Weinstein, E., and M. Feder. "Sequential Algorithms Based on Kullback-Liebler Information Measure and their Application to FIR System Identification." *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, Glasgow, Scotland, May 23-26, 1989.
- Xia, J., S.M. Ali, and J.A. Kong. "Analysis of Microstrip Discontinuities on Anisotropic Substrates." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Yang, W. "A Charged-Coupled Device Architecture for On Focal Plane Image Signal Processing." *Proceedings of the International Symposium on VLSI Technology, Systems, and Applications*, pp. 266-270, Taipei, Taiwan, R.O.C., May 1989.
- Yang, W., and A.M. Chiang. "VLSI Processor Architectures for Computer Vision." *Proceedings of the Image Understanding Work-*

- shop, pp. 193-199, Palo Alto, California, May 1989.
- Yang, Y.E., and J.A. Kong. "Transient Analysis of Capacitively Loaded VLSI Off-Chip Interconnections." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Yen, A., R.A. Ghanbari, E.H. Anderson, and H.I. Smith. "Fabrication of 100 nm-Period Gratings Using Achromatic Holographic Lithography." *Proceedings of the International Conference Microlithography, Microcircuit Engineering*, Cambridge, England, September 26-28, 1989.
- Yueh, H.A., J.A. Kong, R.M. Barnes, and R.T. Shin. "Calibration of Polarimetric Radars Using In-Scene Reflectors." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Yueh, H.A., J.A. Kong, J.K. Jao, R.T. Shin, and L.M. Novak. "K-distribution and Polarimetric Terrain Radar Clutter." *Progress in Electromagnetics Research Symposium*, Boston, Massachusetts, July 25-26, 1989.
- Zissman, M.A., C.J. Weinstein, L.D. Braida, R.M. Uchanski, and W.M. Rabinowitz. "Speech State Adaptive Simulation of Co-channel Talker Interference Suppression." *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, Glasgow, Scotland, May 23-26, 1989, pp. 361-364.
- A.3 Meeting Papers Accepted For Publication**
- Asher, P., S. Devadas, and A.R. Newton. "A Unified Approach to Decomposition and Re-decomposition of Sequential Machines." *Proceedings of the 27th Design Automation Conference*, Orlando, Florida, June 1990.
- Asher, P., S. Devadas, and A.R. Newton. "Multiple-Fault Testable Sequential Machines." *Proceedings of the International Symposium on Circuits and Systems*, New Orleans, May 1990.
- Beckmann, P., and B.R. Musicus. "Fault-Tolerant Round Robin A/D Converter System." *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, Albuquerque, New Mexico, April 1990.
- Bossi, D.E., W.D. Goodhue, M.C. Finn, K. Rauschenbach, and R.H. Rediker. "Fabrication and Enhanced Performance of Reduced-Confinement GaAlAs Tapered-Waveguide Antennas." *Technical Digest of the Topical Meeting on Integrated Photonics Research*, Hilton Head, South Carolina, March 1990. (Optical Society of America, Washington, DC).
- Corcoran, C., and R.H. Rediker. "Operation of Five Discrete Diode Lasers as a Coherent Ensemble by Fiber-Coupling into an External Cavity." *Technical Digest of the Conference on Electo optics and Lasers, CLEO 90*, Anaheim, California, May 1990. (Optical Society of America, Washington, DC).
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- Devadas, S., and K. Keutzer. "A Unified Approach to the Synthesis of Fully Testable Sequential Machines." *Proceedings of the 23rd International Conference on System Sciences*, Hawaii, January 1990.
- Devadas, S., and K. Keutzer. "Synthesis and Optimization Procedures for Robust Delay-Fault Testability of Logic Circuits." *Proceedings of the 27th Design Automation Conference*, Orlando, Florida, June 1990.
- Devadas, S., and K. Keutzer. "Logic Synthesis and Testability." *Proceedings of the International Symposium on Circuits and Systems*, New Orleans, May 1990.
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- Devadas, S., K. Keutzer, and J. White. "Estimation of Power Dissipation in CMOS Combinational Circuits." *Proceedings of the Custom Integrated Circuits Conference*, Boston, Massachusetts, May 1990.
- Devadas, S., H-K.T. Ma, A.R. Newton, and A. Sangiovanni-Vincentelli. "Irredundant Sequential Machines Via Optimal Logic Synthesis." *Proceedings of the 23rd International Confer-*

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- Devadas, S., and A.R. Newton. "Exact Algorithms for Output Encoding, State Assignment and Four-Level Boolean Minimization." *Proceedings of the 23rd International Conference on System Sciences*, Hawaii, January 1990.
- Ghosh, A., S. Devadas, and A.R. Newton. "Verification of Interacting Sequential Circuits." *Proceedings of the 27th Design Automation Conference*, Orlando, Florida, June 1990.
- Ghosh, A., S. Devadas, and A.R. Newton. "Sequential Test Generation at the Register-Transfer and Logic Levels." *Proceedings of the 27th Design Automation Conference*, Orlando, Florida, June 1990.
- Lam, K., and S. Devadas. "Performance-Oriented Synthesis of Finite State Machines." *Proceedings of the International Symposium on Circuits and Systems*, New Orleans, May 1990.
- Nelson, K.A. "Impulsive Stimulated Raman Scattering with Single-Pulse and Multiple-Pulse Excitation." *Proceedings of the 12th International Conference on Raman Spectroscopy*, Columbia, South Carolina, August 13-17, 1990.
- Neto, H., L. Silveira, J. White, and L. Vidigal. "On Exponential Fitting for Circuit Simulation." *Proceedings of the International Symposium on Circuits and Systems*, New Orleans, May 1990.
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- A.4 Published Journal Articles**
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- Alerhand, O.L., E. Kaxiras, J.D. Joannopoulos, and G.W. Turner. "Model of Epitaxial Growth of GaAs on Si(100): Nucleation at Surface Steps." *J. Vac. Sci. Technol. B* 7(4):695-699 (1989).
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## Appendix A. RLE Publications

- Bers, A., G.S. Triantafyllou, and A.K. Ram. "Absolute Instabilities in Inhomogeneous Flows." *Bull. Am. Phys. Soc.* 34:2263 (1989).
- Blauner, P.G., Y. Butt, J.S. Ro, C.V. Thompson, and J. Melngailis. "Focused Ion Beam Induced Deposition of Low-Resistivity Gold Films." *J. Vac. Sci. Technol. B.* 7(6):1816-1818 (1989).
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- ## A.6 Journal Articles Submitted for Publication
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- A.7 Books/Chapters in Books**
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- ## A.8 RLE Publications
- To obtain copies of any of these materials, write: Research Laboratory of Electronics, Communications Office, Room 36-412, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139 (617/253-2566).
- Prepayment is required. Please include a check in U.S. funds payable to MIT RLE and allow six to eight weeks for surface mail. For foreign airmail, include an additional \$4.00 for each report ordered.
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- Brabson, A.R. *Nonlinear Optical Effects in a Single-Mode Fiber Mach-Zehnder Interferometer*. S.B. thesis. Dept. of Electr. Eng. and Comput. Sci., MIT, 1989.
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- Carpenter, R. *Material Characterization Techniques for SOI Devices*. S.M. thesis. Dept. of Electr. Eng. and Comput. Sci., MIT, 1989.
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- Joo, T.H. *Detection Statistics for Multichannel Data.* Ph.D. diss. Dept. of Electr. Eng. and Comput. Sci., MIT, 1989.
- Kaplan, J.T. *Pass and Restoring Logic Technology Mapping for the Efficient Automated Generation of Combinational Leaf Cells.* S.M. thesis. Dept. of Electr. Eng. and Comput. Sci., MIT, 1989.
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- Shahidi, G.G. *Non-Stationary Transport Effects in Deep Sub-Micron Channel Si MOSFETs.* Ph.D. diss. Dept. of Electr. Eng. and Comput. Sci., MIT, 1989.
- Shinn-Cunningham, B.G. *Understanding the Precedence Effect: An Examination of Parameters Affecting its Strength.* S.M. thesis. Dept. of Electr. Eng. and Comput. Sci., MIT, 1989.
- Song, W.S. *A Fault-Tolerant Multiprocessor Architecture for Digital Signal Processing Applications.* Ph.D. diss. Dept. of Electr. Eng. and Comput. Sci., MIT, 1989.
- Tamir, T.J. *Characterization of the Speech of Tadoma Users.* S.B. thesis. Dept. of Electr. Eng. and Comput. Sci., MIT, 1989.
- Welch, G.R. *High Resolution Spectroscopy of Rydberg Atoms in a Magnetic Field.* Ph.D. diss. Dept. of Physics, MIT, 1989.
- Wong, S.B. *Magnetotransport Studies of the Magnetic Field Induced Metal-Insulator Transition in Hg<sub>1-x</sub>Mn<sub>x</sub>Te.* Ph.D. diss. Dept. of Physics, MIT, 1989.
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## A.10 Miscellaneous Publications

- Chow, C., V. Fuchs, and A. Bers. *Reflection at the Resonance Layer of the Fast Alfvén Wave in Ion Cyclotron Heating.* MIT Plasma Fusion Center Report PFC/JA-90-2. Cambridge, MIT, 1990.
- Chow, C., V. Fuchs, and A. Bers. *The ICRF Dispersion Relation for D(<sup>3</sup>He).* MIT Plasma Fusion Center Report PFC/JA-89-42. Cambridge, MIT, 1989.
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- F.B. Simmons, G.A. Studebaker, R.S. Tyler, and Widin. Forthcoming.
- Keast, C.L., P. Tedrow, and C.G. Sodini. "A CCD/CMOS Process for Integrated Image Acquisition and Early Vision Signal Processing." Abstract presented at the VLSI Research Review, MIT, May 22, 1989.
- Lumsdaine, A., J. Wyatt, and I. Elfadel. "Parallel Distributed Networks for Image Smoothing and Segmentation in Analog VLSI." Abstract presented at the VLSI Research Review, MIT, December 18, 1989.
- Ram, A.K., and A. Bers. *Kinetic Ray Tracing in Toroidal Geometry with Application to Mode-Converted Ion-Bernstein Waves*. MIT Plasma Fusion Center Report PFC/JA-89-37. Cambridge, MIT, 1989.
- Shoucri, M., I. Shkarofsky, V. Fuchs, K. Kupfer, A. Bers, and S. Luckhardt. *A Quasi-linear Fokker-Planck Code for the Numerical Solution of the Lower-Hybrid Current Drive Problem in the Presence of Electron Cyclotron Heating*. Report No. CCFM-RI-298e. Varennes, Canada: Centre Canadien de Fusion Magnétique, Tokamak de Varennes, 1989.
- Standley, D., and J.L. Wyatt. "Stability Criterion for Lateral Inhibition and Related Networks that is Robust in the Presence of Integrated Circuit Parasitics." Abstract presented at the VLSI Research Review, MIT, December 18, 1989.
- Yang, W. *Method and Charge Coupled Apparatus for Algorithmic Computations*. Patent application submitted to U.S. Patent Office on May 1, 1989. Receipt number 07/352,765.