

Wolfgang Porod: Conference Publications and Presentations

- W. Porod, P. Vogl, and G. Bauer, "Lattice dynamics and structure of semiconductors," presented at the *15th International Conference on the Physics of Semiconductors*, Kyoto, Japan, August 1980.
- K. A. Jones, W. Porod, and D. K. Ferry, "Clustering in III-V semiconductors," presented at the *Workshop on Compound Semiconductors for Microwave Materials and Devices*, Scottsdale, Arizona, February 1982.
- W. Porod and D. K. Ferry, "Second-neighbor interactions and the band gap variation in semiconductor alloys," abstract published in the *Bulletin of the APS*, Vol. 27, No. 3, p. 188, March 1982; presented at the *March Meeting of the American Physical Society*, Dallas, Texas, March 1982.
- P. Kocevcar, W. Pötz, and W. Porod, "Cooling rates of highly photoexcited electron-hole plasma in semiconductors," presented at the *16th International Conference on the Physics of Semiconductors*, Montpellier, France, August 1982.
- W. Porod and D. K. Ferry, "A pattern recognition system for VLSI," abstract published in the *Bulletin of the APS*, Vol. 27, No. 8, Part I, p. 884, October 1982; presented at the *Fall Meeting of the American Physical Society*, Philadelphia, Pennsylvania, November 1982.
- R. O. Grondin, W. Porod, C. M. Loeffler, and D. K. Ferry, "Randomly interconnected device arrays," abstract published in the *Bulletin of the APS*, Vol. 27, No. 8, Part I, p. 884, October 1982; presented at the *Fall Meeting of the American Physical Society*, Philadelphia, Pennsylvania, November 1982.
- S. E. Goodnick, W. Porod, R. O. Grondin, S. M. Goodnick, C. W. Wilmsen, and D. K. Ferry, "A Monte Carlo study of Si (111) surface oxidation," poster presented at the *10th Annual Conference on the Physics and Chemistry of Semiconductor Interfaces*, PCSI-10, Santa Fe, New Mexico, January 1983.
- W. Porod and D. K. Ferry, "An empirical extrapolation scheme for clustering based on atomic energies," abstract published in the *Bulletin of the APS*, Vol. 28, No. 3, p. 308, March 1983; presented at the *March Meeting of the American Physical Society*, Los Angeles, California, March 1983.
- W. Porod and D. K. Ferry, "Modification of the virtual-crystal approximation: application to quaternary semiconductors," abstract published in the *Bulletin of the APS*, Vol. 28, No. 3, p. 309, March 1983; presented at the *March Meeting of the American Physical Society*, Los Angeles, California, March 1983.
- R. O. Grondin, W. Porod, C. M. Loeffler, and D. K. Ferry, (Invited), "Cooperative effects in interconnected device arrays," presented at the *2nd International Workshop on "Molecular" Electronic Devices*, Naval Research Laboratory, Washington, D.C., June 1983.
- W. Porod and D. K. Ferry, "Pattern recognition for minicomputers," *Proceedings of the 23rd International Symposium on Mini and Microcomputers and their Applications*, pp. 23 - 27; presented at the *23rd International Symposium on Mini and Microcomputers and their Applications*, San Antonio, December 1983.

- R. O. Grondin, W. Porod, J. Ho, D. K. Ferry, and G. J. Iafrate, "On the existence and detection of Bloch oscillations in superlattices," presented at the *1st International Conference on Superlattices, Microstructures, and Microdevices*, Urbana, Illinois, August 1984.
- W. Porod, W. Pötz, and D. K. Ferry, "A parametric study of interband absorption in GaAs - Al_xGa_{1-x}As quantum wells," presented at the *12th Annual Conference on the Physics and Chemistry of Semiconductor Interfaces*, PCSI-12, Tempe, Arizona, January 1985.
- G. N. Maracas, W. Porod, and D. K. Ferry, "Low-frequency oscillations and noise in semi-insulating GaAs substrates," presented at the *Workshop on Compound Semiconductors for Microwave Materials and Devices*, Fort Lauderdale, Florida, February 1985.
- D. K. Ferry, R. O. Grondin, and W. Porod, (Invited), "Interconnections and advanced architectures for ULSI," presented at the *Workshop on VLSI Frontiers*, San Diego, California, June 1985.
- W. Pötz, W. Porod, and D. K. Ferry, "Multi-quantum wells to reveal the band offsets at semiconductor interfaces," presented at the *4th International Conference on Hot Carriers in Semiconductors*, Innsbruck, Austria, July 1985.
- J. Ho, R. O. Grondin, P. A. Blakey, and W. Porod, "High frequency application of hot electrons in superlattices," poster presented at the *4th International Conference on Hot Carriers in Semiconductors*, Innsbruck, Austria, July 1985.
- G. N. Maracas, W. Porod, D. A. Johnson, D. K. Ferry, and H. Goronkin, "Low-frequency oscillations and routes to chaos in semi-insulating GaAs," poster presented at the *4th International Conference on Hot Carriers in Semiconductors*, Innsbruck, Austria, July 1985.
- W. Porod and D. K. Ferry, "Monte Carlo study of high electric field quantum transport in SiO₂," presented at the *4th International Conference on Hot Carriers in Semiconductors*, Innsbruck, Austria, July 1985.
- D. K. Ferry and W. Porod, (Invited), "Interconnections and architecture for ensembles of microstructures," presented at the *Workshop on the Future of Microstructure Technology*, Seabrook, South Carolina, October 1985.
- W. Porod and D. K. Ferry, (Invited), "Monte Carlo for quantum transport," presented at the *Workshop on Ultrasmall and Quantum-Structured Devices*, Tempe, Arizona, December 1985.
- W. Porod and D. K. Ferry, "On the inclusion of quantum mechanical effects in Monte Carlo simulations," abstract published in the *Bulletin of the APS*, Vol. 31, No. 3, p. 502, March 1986; presented at the *March Meeting of the American Physical Society*, Las Vegas, Nevada, March 1986.
- A. N. Michel, J. A. Farrell and W. Porod, (Invited), "Qualitative Theory for Neural Networks," presented at the *1987 International Symposium on the Mathematical Theory of Networks and Systems*, Phoenix, Arizona, June 1987.
- W. Porod, (Invited), "Transport in SiO₂," presented at the *ONR-SDIO Review Meeting*, Washington, D.C., June 1987.
- W. Porod and C. S. Lent, "Effect of continuum resonances on hot carrier transport in quantum wells," poster presented at the *5th International Conference on Hot Carriers in Semiconductors*, Boston, Massachusetts, July 1987.

- C. S. Lent and W. Porod, "Effect of continuum resonances on electronic transport in quantum wells," poster presented at the *3rd International Conference on Superlattices, Microstructures, and Microdevices*, Chicago, Illinois, August 1987.
- J. H. Li, A. N. Michel, and W. Porod, "Qualitative Analysis of Neural Networks: Global Theory," in the *Proceedings of the 25th Allerton Conference on Communication, Control, and Computing*, Vol. II, p. 1113-1122; presented at the *25th Allerton Conference on Communication, Control, and Computing*, Allerton, Illinois, September 1987.
- A. N. Michel, J. A. Farrell and W. Porod, "Qualitative Analysis of Neural Networks: Local Theory," in the *Proceedings of the 25th Allerton Conference on Communication, Control, and Computing*, Vol. II, p. 1123 - 1132; presented at the *25th Allerton Conference on Communication, Control, and Computing*, Allerton, Illinois, September 1987.
- A. N. Michel, J. A. Farrell, and W. Porod, "Stability Results for Neural Networks," poster presented at the *IEEE Conference on Neural Information Processing Systems*, Denver, Colorado, November 1987.
- W. Porod, (Invited), "Quantum Transport for Microstructures," presented at the *Workshop on Femtosecond Physics in Semiconductors*, Phoenix, Arizona, December 1987.
- C. S. Lent and W. Porod, "Polar Optical Scattering Rates for the Escape of Carriers from a Quantum Well," poster presented at the *15th International Conference on the Physics and Chemistry of Semiconductor Interfaces*, PCSI-15, Asilomar, California, February 1988.
- D. L. Gray, A. N. Michel, and W. Porod, "Application of Neural Networks to Sorting Problems," in the *Proceedings of the Twenty-Second Annual Conference on Information Sciences and Systems*, Vol I, pp. 276 - 281; presented at the *22nd Annual Conference on Information Sciences and Systems*, Princeton University, March 1988.
- A. N. Michel, J. A. Farrell and W. Porod, (Invited), "Qualitative Analysis of Neural Networks," in the *Proceedings of the 1988 IEEE International Symposium on Circuits and Systems*, pp. 989 - 992; presented at the *1988 IEEE International Symposium on Circuits and Systems*, Helsinki, Espoo, Finland, June 1988.
- W. Porod, (Invited), "Transport in SiO₂," presented at the *ONR-SDIO Review Meeting*, Washington, D.C., July 1988.
- A. N. Michel, J. A. Farrell and W. Porod, (Invited), "Qualitative Analysis of Neural Networks: Local Theory," presented at the *12th World Congress on Scientific Computation - IMACS 1988*, Paris, France, July 1988.
- S. Bandyopadhyay and W. Porod, "A proposed double quantum wire Aharonov-Bohm interferometer for LN₂ temperature operation," poster presented at the *4th International Conference on Superlattices, Microstructures, and Microdevices*, Trieste, Italy, August 1988.
- D. L. Gray, A. N. Michel, and W. Porod, "Application of Neural Networks to Sorting Problems," abstract published in *Neural Networks*, Vol. 1, Suppl. 1, p. 441, 1988; presented at the *First Annual Conference of the International Neural Network Society (INNS)*, Boston, Massachusetts, September 1988.

- J. H. Li, A. N. Michel, and W. Porod, "Analysis and synthesis of a class of neural networks: variable structure systems with infinite gains," in the *Proceedings of the 26th Allerton Conference on Communication, Control, and Computing*, pp. 508 - 517; presented at the *26th Allerton Conference on Communication, Control, and Computing*, Allerton, Illinois, September 1988.
- Suyog Bhohe, Wolfgang Porod, and Supriyo Bandyopadhyay, (Invited), "Modulated interface roughness scattering in quantum wells and its device applications," poster presented at the *Argonne Colloquium on the Frontiers of Surface Analysis*, Argonne, Illinois, September 1988.
- Paulo Araya, Eduardo E. Wolf, and Wolfgang Porod, "Monte Carlo simulation of carbon monoxide oxidation on Pt," poster presented at the *Argonne Colloquium on the Frontiers of Surface Analysis*, Argonne, Illinois, September 1988.
- D. L. Gray, A. N. Michel, and W. Porod, (Invited), "A new architecture for neural networks," presented at the *ComCon 88 - Advances in Communications and Control Systems*, Baton Rouge, Louisiana, October 1988.
- D. L. Gray, A. N. Michel, and W. Porod, (Invited), "Neural networks with lower block triangular interconnecting structure," presented at the *ComCon 88 - Advances in Communications and Control Systems*, Baton Rouge, Louisiana, October 1988.
- R. L. Kamocsai and W. Porod, "A Monte Carlo study of the influence of traps on high field electronic transport in a - SiO₂," poster presented at the *16th Midwest Solid State Theory Symposium*, Cincinnati, Ohio, October 1988.
- S. Bhohe, W. Porod, S. Bandyopadhyay, and D. J. Kirkner, "Selective doping in quantum wells and its device applications," poster presented at the *16th Midwest Solid State Theory Symposium*, Cincinnati, Ohio, October 1988.
- Paulo Araya, Wolfgang Porod, and Eduardo E. Wolf, "Monte Carlo simulation of CO oxidation on Pt," presented at the *National Meeting of the American Institute of Chemical Engineers*, Washington, D. C., November, 1988.
- D. L. Gray, A. N. Michel, and W. Porod, "Analysis and synthesis of a class of neural networks with lower block triangular interconnecting structure," in the *Proceedings of the 27th IEEE Conference on Decision and Control*, pp. 350 - 352; presented at the *27th IEEE Conference on Decision and Control*, Austin, Texas, December 1988.
- S. Bandyopadhyay, G. H. Bernstein, and W. Porod, "Phase coherent lateral quantum transport phenomena in semiconductor nanostructures," poster presented at the *International Symposium on Nanostructure Physics and Fabrication*, College Station, Texas, March 1989.
- R. L. Kamocsai and W. Porod, "A Monte Carlo study of the influence of traps on high field electronic transport in a - SiO₂," poster presented at the *International Symposium on Nanostructure Physics and Fabrication*, College Station, Texas, March 1989.
- S. Bhohe, W. Porod, S. Bandyopadhyay, and D. J. Kirkner, "Selective doping in quantum wells and its device applications," poster presented at the *International Symposium on Nanostructure Physics and Fabrication*, College Station, Texas, March 1989.
- R. L. Kamocsai and W. Porod, "High field transport and breakdown in a-SiO₂ under the influence of traps," abstract published in the *Bulletin of the APS*, Vol. 34, No. 3, p. 950, March 1989; presented at the *1989 March Meeting of the American Physical Society*, St. Louis, Missouri, March 1989.

- Suyog Bhobe, Wolfgang Porod, and Supriyo Bandyopadhyay, "Analysis and simulation of velocity modulation in a quantum well," abstract published in the *Bulletin of the APS*, Vol. 34, No. 3, p. 1001, March 1989; presented at the *1989 March Meeting of the American Physical Society*, St. Louis, Missouri, March 1989.
- W. Porod and S. Bandyopadhyay, "Performance of 2-d and 1-d electrostatic Aharonov - Bohm interferometers in the presence of elastic scattering," abstract published in the *Bulletin of the APS*, Vol. 34, No. 3, p. 547, March 1989; presented at the *1989 March Meeting of the American Physical Society*, St. Louis, Missouri, March 1989.
- A. N. Michel, J. A. Farrell, D. L. Gray, and W. Porod, (Invited), "Some results on the modeling, analysis, and design of neural networks," in the *Proceedings of the 1989 International Symposium on Circuits and Systems*, pp. 482 - 485; presented at the *1989 International Symposium on Circuits and Systems*, ISCAS, Portland, Oregon, May 1989.
- J.-H. Li, A. N. Michel, and W. Porod, (Invited), "Analysis and synthesis of a class of neural networks: linear systems operating in saturated modes," in the *Proceedings of the 1989 International Symposium on Circuits and Systems*, pp. 830 - 833; presented at the *1989 International Symposium on Circuits and Systems*, ISCAS, Portland, Oregon, May 1989.
- W. Porod, (Invited), "Transport in SiO₂," presented at the *ONR-SDIO Review Meeting*, Washington, D.C., June 1989.
- Suyog Bhobe, Wolfgang Porod, and Supriyo Bandyopadhyay, "Configuration-dependent Impurity Scattering Rates in quasi 2-D Electronic Systems," poster presented at the *4th International Conference on Modulated Semiconductor Structures*, Ann Arbor, Michigan, July 1989.
- Suyog Bhobe, Wolfgang Porod, and Supriyo Bandyopadhyay, "Modulation of Impurity Scattering Rates by Wavefunction Engineering in quasi 2-D Systems and its Device Applications," poster presented at the *Sixth International Conference on Hot Carriers in Semiconductors*, Phoenix, Arizona, July 1989.
- Robert L. Kamocsai and Wolfgang Porod, "Hot Electrons and Traps in a-SiO₂," poster presented at the *Sixth International Conference on Hot Carriers in Semiconductors*, Phoenix, Arizona, July 1989.
- Wolfgang Porod, (Invited), "Dynamical Behavior of Neural Nets and Cellular Automata," presented at the *MRC/DARPA Workshop on Neural Nets and Cellular Automata*, La Jolla, California, July 1989.
- Henry Harbury and Wolfgang Porod, "A Proposed Quantum Wire Structure: An 'Accumulation Wire' at Crossing Heterointerfaces," presented at the *17th International Conference on the Physics and Chemistry of Semiconductor Interfaces*, PCSI-17, Clearwater Beach, Florida, January/February 1990.
- R. L. Kamocsai and W. Porod, "A microscopic theory of high-field electronic transport and trapping/detrapping in a - SiO₂," abstract published in the *Bulletin of the APS*, Vol. 35, No. 3, p. 739, March 1990; presented at the *1990 March Meeting of the American Physical Society*, Anaheim, California, March 1990.
- H. K. Harbury and W. Porod, "Proposal of an 'Accumulation Wire' Formed by Crossing Heterointerfaces," abstract published in the *Bulletin of the APS*, Vol. 35, No. 3, p. 350, March 1990; presented at the *1990 March Meeting of the American Physical Society*, Anaheim, California, March 1990.

- S. Subramaniam, S. Bandyopadhyay, and W. Porod, "Analysis of Quantum Transistors Utilizing Mesoscopic Electron Waveguides," abstract published in the *Bulletin of the APS*, Vol. 35, No. 3, p. 493, March 1990; presented at the *1990 March Meeting of the American Physical Society*, Anaheim, California, March 1990.
- Henry Harbury and Wolfgang Porod, "Numerical Study of Electronic States in a Quantum Wire at Crossing Heterointerfaces," presented at the *Workshop on Computational Electronics*, Urbana, Illinois, May 1990.
- Robert L. Kamocsai and Wolfgang Porod, "Numerical Study of High Field Transport in SiO₂ with Traps: A Self-Consistent Algorithm using the Monte Carlo Technique and a Rate Equation Model," presented at the *Workshop on Computational Electronics*, Urbana, Illinois, May 1990.
- W. Porod, (Invited), "Transport in SiO₂," presented at the *ONR-SDIO Review Meeting*, Stanford, California, July 1990.
- N. M. Jisrawi, S. J. Koester, Q. Lu, M. J. Honkanen, W. Porod, G. H. Bernstein, and S. T. Ruggiero, "Microwave Studies of Single Electron Charging Effects," abstract published in the *Bulletin of the APS*, Vol. 36, No. 3, p. 872, March 1991; presented at the *1991 March Meeting of the American Physical Society*, Cincinnati, Ohio, March 1991.
- H. K. Harbury, W. Porod, and C. S. Lent, "Self-Consistent Calculation of Coherent Transport in Split-Gate Structures," abstract published in the *Bulletin of the APS*, Vol. 36, No. 3, p. 1049, March 1991; presented at the *1991 March Meeting of the American Physical Society*, Cincinnati, Ohio, March 1991.
- W. Porod, (Invited), "A Monte Carlo Model of High - Field Electronic Transport and Hot Electron Trapping/Detrapping in SiO₂," in the *Proceedings of the Seventh International Conference on the Numerical Analysis of Semiconductor Devices and Integrated Circuits*, NASECODE-7, Ed. by JJH Miller, pp. 81 - 82; presented at the *Seventh International Conference on the Numerical Analysis of Semiconductor Devices and Integrated Circuits*, NASECODE-7, Copper Mountain, Colorado, April 1991.
- H. K. Harbury, W. Porod, and C. S. Lent, "Self-Consistent Calculation of Coherent Transport in Split-Gate Structures," in the *Proceedings of the Seventh International Conference on the Numerical Analysis of Semiconductor Devices and Integrated Circuits*, NASECODE-7, Ed. by JJH Miller, pp. 136 - 137; presented at the *Seventh International Conference on the Numerical Analysis of Semiconductor Devices and Integrated Circuits*, NASECODE-7, Copper Mountain, Colorado, April 1991.
- Wolfgang Porod, (Invited), "Computation in Granular Flatland: Discrete Space - Time Cellular Automata," presented at the *Granular Nanoelectronics Workshop*, Urbana, Illinois, May 1991.
- Henry K. Harbury, Wolfgang Porod, and Craig S. Lent, "Local-Field Effects in Self-Consistent Transport Calculations for Narrow Split-Gate Structures," presented at the *International Symposium on Nanostructures and Mesoscopic Systems*, Santa Fe, New Mexico, May 1991.
- Wolfgang Porod, (Invited), "Locally - Interconnected Architectures," presented at the *DSRC/ DARPA Workshop on Cellular Automata and Quantum Devices*, La Jolla, California, July 1991.
- Henry Harbury, Wolfgang Porod, and Stephen M. Goodnick, "Lateral p-n junctions between quasi two-dimensional electron and hole systems at corrugated

GaAs/AlGaAs interfaces,” presented at the *19th International Conference on the Physics and Chemistry of Semiconductor Interfaces*, PCSI-19, Death Valley, January 1992.

Paul D. Tougaw, Craig S. Lent, Wolfgang Porod and G. H. Bernstein, “Cellular automata rules derived from quantum dot coupling,” abstract published in the *Bulletin of the APS*, Vol. 37, No. 1, p. 135, March 1992; presented at the *1992 March Meeting of the American Physical Society*, Indianapolis, Indiana, March 1992.

Henry K. Harbury, Wolfgang Porod, and Stephen M. Goodnick, “Lateral p-n junctions between quasi two dimensional electron and hole systems at corrugated GaAs/AlGaAs interfaces,” abstract published in the *Bulletin of the APS*, Vol. 37, No. 1, p. 324, March 1992; presented at the *1992 March Meeting of the American Physical Society*, Indianapolis, Indiana, March 1992.

Wolfgang Porod, Henry K. Harbury, and Gary H. Bernstein, “A Study of Cellular Automata Architectures for Integrated Quantum Device Arrays Using the Helmholtz Equations as a Computational Model,” abstract published in the *Bulletin of the APS*, Vol. 37, No. 1, pp. 134 - 135, March 1992; presented at the *1992 March Meeting of the American Physical Society*, Indianapolis, Indiana, March 1992.

Zhi-an Shao, Wolfgang Porod, and Craig S. Lent, “Transmission Resonances and Zeros in Quantum Waveguide Structures,” abstract published in the *Bulletin of the APS*, Vol. 37, No. 1, pp. 289 - 290, March 1992; presented at the *1992 March Meeting of the American Physical Society*, Indianapolis, Indiana, March 1992.

Lucio Rota, Stephen M. Goodnick, Wolfgang Porod, Fausto Rossi, and Paolo Lugli, “Electron- Electron Interaction in Multisubband Quantum Wires,” abstract published in the *Bulletin of the APS*, Vol. 37, No. 1, p. 239, March 1992; presented at the *1992 March Meeting of the American Physical Society*, Indianapolis, Indiana, March 1992.

L. Rota, F. Rossi, P. Lugli, E. Molinari, S. M. Goodnick, and W. Porod, “Monte Carlo Simulation of a ‘True’ Quantum Wire,” presented at the *1992 Symposium on Compound Semiconductor Physics and Devices, of SPIE - The International Society of Optical Engineering*, Somerset, New Jersey, March 1992.

Henry K. Harbury, Wolfgang Porod, and Stephen M. Goodnick, “A Numerical Study of Lateral p- n Junctions between Quasi Two-Dimensional Electron and Hole Systems at Corrugated GaAs/ AlGaAs Interfaces,” *Proceedings of the International Workshop on Computational Electronics*, pp. 249 - 251; presented at the *International Workshop on Computational Electronics*, Urbana, Illinois, May 1992.

Zhi-an Shao, Wolfgang Porod, and Craig S. Lent, “A Numerical Study of Transmission Resonances and Zeros in Quantum Waveguide Structures,” *Proceedings of the International Workshop on Computational Electronics*, pp. 253 - 256; presented at the *International Workshop on Computational Electronics*, Urbana, Illinois, May 1992.

Craig S. Lent, Douglas Tougaw, and Wolfgang Porod, “A Bistable Quantum Cell for Cellular Automata,” *Proceedings of the International Workshop on Computational Electronics*, pp. 163 - 166; presented at the *International Workshop on Computational Electronics*, Urbana, Illinois, May 1992.

Craig S. Lent, P. Douglas Tougaw, Wolfgang Porod, and Gary Bernstein, “Quantum Cellular Automata,” presented at the *International Symposium on New Phenomena in Mesoscopic Structures*, Maui, Hawaii, December 1992.

Henry K. Harbury, Wolfgang Porod, and Stephen M. Goodnick, “Novel Quantum Wire Formed by Lateral p-n-p Junctions Between Quasi-Two-Dimensional Electron and

- Hole Systems at Corrugated GaAs/AlGaAs Interfaces,” presented at the *International Workshop on Quantum Structures*, Santa Barbara, California, March 1993.
- Craig S. Lent, P. Douglas Tougaw, Wolfgang Porod, and Gary Bernstein,” Quantum Cellular Automata,” presented at the *International Workshop on Quantum Structures*, Santa Barbara, California, March 1993.
- Gary H. Bernstein, Xiaokang Huang, Greg Bazan, Davide A. Hill, Craig S. Lent, and Wolfgang Porod, “New Technique for Computation and Challenges for Electron Beam Lithography,” presented at the *Three-Beam Conference*, San Diego, California, June 1993.
- Craig S. Lent, Wolfgang Porod, and P. Douglas Tougaw, (Invited), “Quantum Simulation of Several-Particle Systems,” presented at the *Microwave Theory and Techniques Symposium, Workshop on Combined Self-Consistent Particle Transport Simulation and Full Wave Dynamic Field Simulation for Monolithic Solid State Device and Circuit Calculations*, Atlanta, Georgia, June 1993.
- Minhan Chen, Wolfgang Porod, and David J. Kirkner, “Boundary Conditions for Quantum Devices with Exposed Surfaces,” in *Proceedings of the International Workshop on Computational Electronics*, C. Snowden and M. Howes, eds., pp. 255 - 259; presented at the *International Workshop on Computational Electronics*, Leeds, England, August 1993.
- Craig S. Lent, Wolfgang Porod, and P. Douglas Tougaw, “Quantum Simulation of Several-Particle Systems,” in *Proceedings of the International Workshop on Computational Electronics*, C. Snowden and M. Howes, eds., pp. 303 - 307; presented at the *International Workshop on Computational Electronics*, Leeds, England, August 1993.
- Henry K. Harbury and Wolfgang Porod, “Numerical Linear Response Study of the Electron Wind Force of Electromigration in Quasi-1D Transport,” in *Proceedings of the International Workshop on Computational Electronics*, C. Snowden and M. Howes, eds., pp. 323 - 327; presented at the *International Workshop on Computational Electronics*, Leeds, England, August 1993.
- Zhi-an Shao, Wolfgang Porod, and Craig S. Lent, “Resonance/Antiresonance Lineshape for Transmission in Quantum Waveguides with Resonantly-Coupled Cavities,” in *Proceedings of the International Workshop on Computational Electronics*, C. Snowden and M. Howes, eds., pp. 328 - 332; presented at the *International Workshop on Computational Electronics*, Leeds, England, August 1993.
- Craig S. Lent, P. Douglas Tougaw, Wolfgang Porod, and Gary H. Bernstein, (Invited), “Quantum Cellular Automata,” presented at the *21st Midwest Solid State Theory Symposium*, Detroit, Michigan, October 1993.
- Craig S. Lent, P. Douglas Tougaw, Wolfgang Porod, and Gary H. Bernstein, (Invited), “Quantum Cellular Automata,” presented at the *ARPA ULTRA Program Review*, Santa Fe, New Mexico, October 1993.
- Wolfgang Porod and Craig S. Lent, (Invited), “Resonant Tunneling Valley Current Suppression: Engineering Poles and Zeros in the Complex-Energy Plane,” presented at the *Texas Instruments Quantum Device Modeling Workshop*, Dallas, Texas, February 1994.
- Henry K. Harbury and Wolfgang Porod, “Local Fields in Open Two-Dimensional Electronic Scattering Systems,” abstract published in the *Bulletin of the APS*, Vol. 39,

No. 1, p. 75, March 1994; presented at the *1994 March Meeting of the American Physical Society*, Pittsburgh, Pennsylvania, March 1994.

Zhi-an Shao, Craig S. Lent, and Wolfgang Porod, "Resonance-Antiresonance Features for Transmission in Quantum Waveguide Systems," abstract published in the *Bulletin of the APS*, Vol. 39, No. 1, p. 745, March 1994; presented at the *1994 March Meeting of the American Physical Society*, Pittsburgh, Pennsylvania, March 1994.

Craig S. Lent, P. Douglas Tougaw, and Wolfgang Porod, "Quantum Cellular Automata," abstract published in the *Bulletin of the APS*, Vol. 39, No. 1, p. 799, March 1994; presented at the *1994 March Meeting of the American Physical Society*, Pittsburgh, Pennsylvania, March 1994.

Minhan Chen and Wolfgang Porod, "Numerical simulation of electron confinement in quantum dot structures," abstract published in the *Bulletin of the APS*, Vol. 39, No. 1, pp. 800-801, March 1994; presented at the *1994 March Meeting of the American Physical Society*, Pittsburgh, Pennsylvania, March 1994.

Minhan Chen and Wolfgang Porod, "Numerical simulation of electron confinement in quantum dot structures," presented at the Engineering Foundation Conference on *Surfaces and Interfaces in Mesoscopic Devices*, Kona, Hawaii, April 1994.

Henry K. Harbury, Wolfgang Porod, and R. Kent Smith, "Open Boundary Conditions for Multidimensional Electronic Scattering States," in *Proceedings of the Third International Workshop on Computational Electronics*, S. M. Goodnick, ed., pp. 153 - 156; presented at the *Third International Workshop on Computational Electronics*, Portland, Oregon, May 1994.

Minhan Chen and Wolfgang Porod, "Numerical Simulation of the Effect of Surface Charges on Electron Confinement in Quantum Dot Structures," in *Proceedings of the Third International Workshop on Computational Electronics*, S. M. Goodnick, ed., pp. 215 - 218; Poster presented at the *Third International Workshop on Computational Electronics*, Portland, Oregon, May 1994.

Zhi-an Shao, Wolfgang Porod, and Craig S. Lent, "A Linear Eigenvalue Method for Calculating the Positions of Transmission Poles and Zeros in Resonator Structures," in *Proceedings of the Third International Workshop on Computational Electronics*, S. M. Goodnick, ed., pp. 219 - 222; Poster presented at the *Third International Workshop on Computational Electronics*, Portland, Oregon, May 1994.

Craig S. Lent, P. Douglas Tougaw, and Wolfgang Porod, (Invited), "Quantum Cellular Automata," *1st European-Canadian Workshop on Mesoscopic Physics and Technology*, Ottawa, Canada, August 1994.

Henry K. Harbury and Wolfgang Porod, "Electronic Scattering States in the Vicinity of Defects in Open Two-Dimensional Electronic Systems, presented at the *21st International Symposium on Compound Semiconductors*, San Diego, California, September 1994.

Craig S. Lent, P. Douglas Tougaw, and Wolfgang Porod, "Quantum Cellular Automata," presented at the *21st International Symposium on Compound Semiconductors*, San Diego, California, September 1994.

Wolfgang Porod, Craig S. Lent, and Gary H. Bernstein, (Invited), "Quantum Cellular Automata," presented at the *ARPA ULTRA Program Review*, Santa Fe, New Mexico, October 1994.

- P. Douglas Tougaw, Craig S. Lent, and Wolfgang Porod, "Quantum Cellular Automata," presented at the *Third International Conference on Nanometer-Scale Science and Technology, NANO3*, Denver, Colorado, October 1994.
- Craig S. Lent, P. Douglas Tougaw, and Wolfgang Porod, "Quantum Cellular Automata: Computing with Arrays of Quantum Dot Molecules," presented at the *Workshop on Physics and Computation - PhysComp94*, Dallas, Texas, November 1994.
- Wolfgang Porod, (Invited), "Quantum Cellular Automata: Computing with Arrays of Quantum Dots," presented at the *Fifth Advanced Heterostructures Workshop - AHW5*, Kona, Hawaii, December 1994.
- Craig S. Lent, P. Douglas Tougaw, and Wolfgang Porod, "Quantum Computation with Quantum Cellular Automata," presented at the *International Workshop on Mesoscopic Physics and Electronics '95*, Tokyo, Japan, March 1995.
- Craig S. Lent, P. Douglas Tougaw, and Wolfgang Porod, (Invited), "Circuits with Quantum Cellular Automata," presented at the *Workshop on Circuit Architectures for Quantum Devices*, Seattle, Washington, May 1995.
- P. Douglas Tougaw, Craig S. Lent, and Wolfgang Porod, "Switching of Quantum Cellular Automata," presented at the *Ninth International Conference on Hot Carriers in Semiconductors*, Chicago, Illinois, August 1995.
- Zhi-an Shao, Wolfgang Porod, and Craig S. Lent, "Valley Current Reduction in Lateral Resonant Tunneling," presented at the *Ninth International Conference on Hot Carriers in Semiconductors*, Chicago, Illinois, August 1995.
- Wolfgang Porod, (Invited), "Quantum Cellular Automata: Computing with coupled quantum dots," presented at the *International Symposium on Future Information Processing Technologies*, Porvoo, Finland, September 1995.
- Wolfgang Porod, (Invited), "Quantum Cellular Automata: Computing with coupled quantum dots," presented at the *Phantoms Strategic Domain Meeting - PHASDOM 95: Physics and Technology of Mesoscopic Structures*, Cambridge, England, October 1995.
- Wolfgang Porod, Craig S. Lent, and Gary H. Bernstein, (Invited), "Quantum Cellular Automata," presented at the *ARPA ULTRA Program Review*, Boulder, Colorado, October 1995.
- J. L. Merz, G. H. Bernstein, C. S. Lent, G. L. Snider, and W. Porod, "Silicon Nanoelectronics," presented at the *ARPA ULTRA Program Review*, Boulder, Colorado, October 1995.
- P. Douglas Tougaw, Craig S. Lent, and Wolfgang Porod, "Putting Quantum Dots to Work: Quantum Cellular Automata," presented at the *42nd National Symposium of the American Vacuum Society*, Minneapolis, Minnesota, October 1995.
- Henry K. Harbury and Wolfgang Porod, "Parallel Computation for Electronic Waves in Quantum Corrals," presented at the *Fourth International Workshop on Computational Electronics*, Tempe, Arizona, October/November 1995.
- Minhan Chen and Wolfgang Porod, "Simulation of Quantum-Dot Structures in Si/SiO₂," presented at the *Fourth International Workshop on Computational Electronics*, Tempe, Arizona, October/November 1995.

- Zhi-an Shao, Wolfgang Porod, and Craig S. Lent, "2D Finite Element Method Simulation of Lateral Resonant Tunneling Devices," presented at the *Fourth International Workshop on Computational Electronics*, Tempe, Arizona, October/November 1995.
- Craig S. Lent, P. Douglas Tougaw, Wolfgang Porod, Greg Bazan, Gary H. Bernstein, Gregory L. Snider, Alexi Orlov, and James L. Merz, "Quantum-dot Cellular Automata: Theory and Experiment," presented at the *Third International Symposium on Nanostructures and Mesoscopic Systems*, Santa Fe, New Mexico, May 1996.
- Geza Toth, Craig S. Lent, P. Douglas Tougaw, Yuriy Brazhnik, Weiwen Weng, Wolfgang Porod, Ruey-Wen Liu, and Yih-Fang Huang, "Quantum Cellular Neural Networks," presented at the *Third International Symposium on Nanostructures and Mesoscopic Systems*, Santa Fe, New Mexico, May 1996.
- A. O. Orlov, X. Zuo, G. Bazan, G. H. Bernstein, C. S. Lent, J. L. Merz, W. Porod, and G. L. Snider, "SiGe Quantum-Dot Cellular Automata," presented at the *Silicon Nanoelectronics Workshop*, Honolulu, Hawaii, June 1996.
- Wolfgang Porod, (Invited), "Quantum-Dot Devices and Quantum Cellular Automata," Plenary Lecture presented at the *Symposium on Visions of Nonlinear Science in the 21st Century*, Sevilla, Spain, June 1996.
- Wolfgang Porod, (Invited), "Computing with Coupled Quantum Dots," Invited Panelist at the *Mini-Symposium on Brain-like Micro- and Nano-Computation*, which was part of the *Second World Congress of Nonlinear Analysis - WCNA'96*, Athens, Greece, July 1996.
- Wolfgang Porod, (Invited), "Modeling Quantum-Dot Cellular Automata Devices and Architectures," *Proceedings of the 23rd International Conference on the Physics of Semiconductors*, ed. by M. Scheffler and R. Zimmermann, pp. 3251 - 3258; presented at the *23rd International Conference on the Physics of Semiconductors*, Berlin, Germany, July 1996.
- J. L. Merz, G. H. Bernstein, C. S. Lent, G. L. Snider, and W. Porod, (Invited), "Silicon Nanoelectronics," presented at the *DARPA ULTRA Program Review*, Estes Park, Colorado, October 1996.
- Wolfgang Porod, Henry K. Harbury, and Craig S. Lent, "Study of Wave Phenomena in Physically- Coupled Device Arrays Using the Helmholtz Equation as a Model," presented at the *Fourth Workshop on Physics and Computation - PhysComp96*, Boston, Massachusetts, November 1996.
- Craig S. Lent, P. Douglas Tougaw, Geza Toth, Weiwen Weng, Yuriy Brazhnik, and Wolfgang Porod, "Quantum Cellular Neural Networks," presented at the *Fourth Workshop on Physics and Computation - PhysComp96*, Boston, Massachusetts, November 1996.
- Wolfgang Porod, (Invited), "Recent Progress in Quantum-Dot Cellular Automata," presented at the *Sixth Advanced Heterostructures Workshop - AHW6*, Kona, Hawaii, December 1996.
- Wolfgang Porod, (Invited), "Coupled Quantum Dot Architectures," presented at the *Japanese Society for Promotion of Science - JSPS 10th Anniversary Symposium*, Tokyo, Japan, January 1997.
- Per Hyldgaard, Henry K. Harbury, and Wolfgang Porod, "Electrostatic Formation of Coupled Si/ SiO₂ Quantum Dot Systems," poster presented at the *Fifth International Workshop of Computational Electronics - IWCE-5*, Notre Dame, Indiana, May 1997.

- A. O. Orlov, I. Amlani, G. H. Bernstein, C. S. Lent, J. L. Merz, W. Porod, and G. L. Snider, "Experimental Demonstration of Quantum-Dot Cellular Automata," Late Paper presented at the *Device Research Conference*, Fort Collins, Colorado, June 1997.
- W. Porod, C. S. Lent, G. Toth, H. Luo, A. Csurgay, Y.-F. Huang, and R.-W. Liu, (Invited), "Quantum-Dot Cellular Nonlinear Networks: Computing with Locally-Connected Quantum Dot Arrays," *Proceedings of the 1997 IEEE International Symposium on Circuits and Systems*, pp. 745 - 748; presented at the *1997 IEEE International Symposium on Circuits and Systems: Circuits and Systems in the Information Age*, Hong Kong, June 1997.
- G. L. Snider, A. O. Orlov, I. Amlani, G. H. Bernstein, C. S. Lent, W. Porod, and J. L. Merz, "Experimental Demonstration of Quantum-dot Cellular Automata," presented at the *Adriatico Research Conference on STM-Based Lithography and Atomic Electronics*, Trieste, Italy, July 1997.
- W. Porod, (Invited), "Modeling Quantum-Dot Cellular Automata Devices and Architectures," abstract published in *Proceedings fo the Second NASA Device Modeling Workshop*, ed. by S. Saini, p. 115; presented at the *Second NASA Device Modeling Workshop*, NASA Ames Research Center, California, August 1997.
- W. Porod, (Invited), "Computing with Coupled Quantum Dots: Quantum-Dot Cellular Automata and Cellular Nonlinear Networks," *Proceedings of the European Conference on Circuit Theory and Design - ECCTD'97*, ed. by A. I. Csurgay and T. Roska, pp. 248 - 253; presented in the Special Session 'Towards Nanoelectronics' at the *European Conference on Circuit Theory and Design - ECCTD'97*, Budapest, Hungary, August/September 1997.
- G. L. Snider, A. O. Orlov, I. Amlani, G. H. Bernstein, C. S. Lent, J. L. Merz, and W. Porod, "Demonstration of a Functional Cell for Quantum-Dot Cellular Automata," presented at the *International Workshop on Nano-Physics and Electronics - NPE'97*, Roppongi, Tokyo, Japan, September 1997.
- G. L. Snider, A. O. Orlov, I. Amlani, G. H. Bernstein, C. S. Lent, J. L. Merz, and W. Porod, "Demonstration of a Functional Cell for Quantum-dot Cellular Automata," presented at the *DARPA ULTRA Program Review*, Santa Fe, New Mexico, October 1997.
- G. L. Snider, A. O. Orlov, I. Amlani, G. H. Bernstein, C. S. Lent, J. L. Merz, and W. Porod, "Demonstration of a Functional Cell for Quantum-dot Cellular Automata," presented at the *2nd International Workshop on Surfaces and Interfaces of Mesoscopic Devices*, Kaanapalli, Maui, Hawaii, December 1997.
- Craig S. Lent, Wolfgang Porod, James L. Merz, Gregory L. Snider, and Gary H. Bernstein, (Invited), "Nanoelectronics Using Quantum-dot Cellular Automata," presented at the *1998 Government Microcircuit Applications Conference - GOMAC'98*, Arlington, Virginia, March 1998.
- Wolfgang Porod, (Invited Plenary Talk), "Towards Nanoelectronics: Possible CNN Implementations using Nanoelectronic Devices," *Proceedings of the Fifth IEEE International Workshop on Cellular Neural Networks and their Applications (CNNA'98)*, ed. by V. Tavsanoğlu, pp. 20 - 25; presented at the *5th IEEE International Workshop on Cellular Neural Networks and their Applications (CNNA'98)*, London, United Kingdom, April 1998.

- Wolfgang Porod, (Invited), "Quantum Dot Cellular Automata: Computing with Coupled Quantum-Dot Molecules," abstract published in *Bulletin of the American Physical Society*, Vol. 43, No. 3, p. 1278; presented at the *1998 APS Division of Atomic, Molecular, and Optical Physics Meeting*, Santa Fe, New Mexico, May 1998.
- Wolfgang Porod, (Invited), "Quantum-Dot Cellular Automata Devices and Architectures," *Proceedings of the Sixth International Symposium 'Nanostructures: Physics & Technology'*, ed. by Zh. Alferov and L. Esaki, pp. 9 - 14; presented at the *International Symposium "Nanostructures: Physics & Technology,"* St. Petersburg, Russia, June 1998.
- Arpad Csurgay, Wolfgang Porod, Craig Lent, (Invited), "Signal Processing with Next-Neighbor- Coupled Time-Varying Quantum Cells," presented at the *Phantoms Strategic Domain Meeting - PHASDOM 98*, Neuchatel, Switzerland, September 1998.
- Islamshah Amlani, Alexei O. Orlov, Gary H. Bernstein, Gregory L. Snider, Geza Toth, Craig S. Lent, and Wolfgang Porod (Invited), "Quantum-Dot Cellular Automata," *Proceedings of the Symposium on Giga Scale Integration Technology*, ed. by M. A. Osman and O. O. Awadelkarim, pp. 15-23; presented in the *Symposium on Giga Scale Integration Technology at the 35th Annual Technical Meeting of the Society for Engineering Science*, Pullman, Washington, September 1998.
- G. L. Snider, G. H. Bernstein, C. S. Lent, J. L. Merz, and W. Porod, "Silicon-based Nano-electronics using Quantum-dot Cellular Automata," presented at the *DARPA ULTRA Program Review*, Estes Park, Colorado, October 1998.
- G. L. Snider, A. O. Orlov, I. Amlani, G. H. Bernstein, C. S. Lent, J. L. Merz, and W. Porod, "Experimental Demonstration of Quantum-Dot Cellular Automata," presented at the *Fourth International Symposium on New Phenomena in Mesoscopic Structures - NPMS'98*, Kauai, Hawaii, December 1998.
- Arpad Csurgay, Wolfgang Porod, Craig Lent, "Why is Time-Varying Control Necessary for Signal Processing with Locally-Connected Quantum-Dot Arrays?," abstract published in *Proceedings of the Ninth Great Lakes Symposium on VLSI*, ed. by R. J. Lomax and P. Mazumder, p. 122; presented at the *Ninth Great Lakes Symposium on VLSI*, Ann Arbor, Michigan, March 1999.
- Xiaohui Wang and Wolfgang Porod, "A Low Power Charge-Recycling CMOS Clock Buffer," extended abstract published in *Proceedings of the Ninth Great Lakes Symposium on VLSI*, ed. by R. J. Lomax and P. Mazumder, pp. 238-239; presented at the *Ninth Great Lakes Symposium on VLSI*, Ann Arbor, Michigan, March 1999.
- Wolfgang Porod, (Invited), "Quantum-Dot Cellular Automata: Review and Perspective," presented at the 4th MEL-ARI / NID Workshop (Nanoscale Information Devices cluster within the European ESPRIT Microelectronics Advanced Research Initiative), Duisburg, Germany, July 7-9, 1999.
- G. L. Snider, A. O. Orlov, I. Amlani, G. H. Bernstein, C. S. Lent, J. L. Merz, and W. Porod, "Quantum-Dot Cellular Automata: Line and Majority Logic Gate," presented at the *International Microprocess and Nanotechnology Conference*, July 1999.
- A. I. Csurgay and W. Porod, "Network Representation of Coupled Molecular Arrays," *Proceedings of the European Conference on Circuit Theory and Design - ECCTD'99*, ed. by C. Beccari, M. Biey, P.P. Civalleri, and M. Gilli, pp. 815-818; presented in the Special Session 'Opportunities and Challenges for Nanoelectronics' at the *European*

Conference on Circuit Theory and Design - ECCTD'99, Stresa, Italy, August/September 1999.

- C. Gerousis, X. Wang, G. Toth, S. M. Goodnick, W. Porod, C. S. Lent, and A. I. Csurgay, "Modeling Nanoelectronic CNN Cells: CMOS, SETs and QCAs," *Proceedings of the European Conference on Circuit Theory and Design - ECCTD'99*, ed. by C. Beccari, M. Biey, P.P. Civalleri, and M. Gilli, pp. 835-838; presented in the Special Session 'Opportunities and Challenges for Nanoelectronics' at the *European Conference on Circuit Theory and Design - ECCTD'99*, Stresa, Italy, August/September 1999.
- Xiaohui Wang and Wolfgang Porod, "Analytic I-V Model for Single-Electron Transistors," presented at the *Seventh International Workshop on Computational Electronics*, Glasgow, Scotland, May 2000.
- Arpad I. Csurgay and Wolfgang Porod, "Toward Nanoelectronic Systems Integration," presented in the Special Session 'Towards Nanoelectronics' at the *2000 IEEE International Symposium on Circuits and Systems: Emerging Technologies for the 21st Century*, Geneva, Switzerland, May 2000.
- C. Gerousis, X. Wang, G. Toth, S. M. Goodnick, W. Porod, C. S. Lent, and A. I. Csurgay, "Modeling Nanoelectronic CNN Cells: CMOS, SETs and QCAs," presented in the Special Session 'Towards Nanoelectronics' at the *2000 IEEE International Symposium on Circuits and Systems: Emerging Technologies for the 21st Century*, Geneva, Switzerland, May 2000.
- Xiaohui Wang and Wolfgang Porod, "Single-Electron Transistor Analytic I-V Model for SPICE Simulations," presented at the *Silicon Nanoelectronics Workshop*, Honolulu, Hawaii, June 2000.
- C. S. Lent, M. Lieberman, G. H. Bernstein, G. J. Iafrate, J. L. Merz, W. Porod, G. L. Snider, T. P. Fehlner, M. Lieberman, G. V. Hartland, O. G. Wiest, and P. M. Kogge, "Molecular Quantum-dot Cellular Automata," presented at the *DARPA Molecular Electronics Program Review*, Lake Tahoe, California, August 2001.
- A. Csurgay and W. Porod, (Invited), "Nanoelectronic circuits: modeling - simulation - realizability," presented at the *Kleinheubacher Tagung 2000*, Kleinheubach am Main, Germany, September 2000.
- W. Porod, "Molecular Quantum-Dot Cellular Automata," presented at the *Advanced Heterostructure Workshop*, Kohala Coast, Hawaii, December 2000.
- W. Porod, M. Lieberman, G. H. Bernstein, G. J. Iafrate, J. L. Merz, C. S. Lent, G. L. Snider, T. P. Fehlner, M. Lieberman, G. V. Hartland, O. G. Wiest, and P. M. Kogge), "Molecular Quantum-dot Cellular Automata," presented at the *DARPA MoleTronics Program Review*, Santa Fe, New Mexico, March 2001.
- Gyorgy Csaba and Wolfgang Porod, "Computing Architectures for Magnetic Dot Arrays," presented at the *First International Conference and School on Spintronics and Quantum Information Technology*, Maui, Hawaii, May 2001.
- Wolfgang Porod, (Invited), "Towards nanoelectronic circuits: CMOS, SET's, and QCA's," presented at the *2001 Silicon Nanoelectronics Workshop*, Kyoto, Japan, June 2001.
- Arpad I. Csurgay and Wolfgang Porod, "Active Nanoelectronic Devices and Circuits," presented in the Special Session 'The Circuit Paradigm in Nanoelectronics' at the *European Conference on Circuit Theory and Design - ECCTD'01*, Espoo, Finland, August 2001.

- Arpad I. Csurgay and Wolfgang Porod, (Invited), "Toward Nanoelectronic Data Recording," presented at the 20th Audio Engineering Society International Conference, Budapest, Hungary, October 2001.
- György Csaba and Wolfgang Porod, "Simulation of field-coupled computing architectures based on magnetic dot arrays," presented at the *8th International Workshop on Computational Electronics*, Beckman Institute, University of Illinois, October 2001.
- Wolfgang Porod, György Csaba, and Arpad I. Csurgay, "Field-Coupled Devices for Nanoelectronic Integrated Circuits," presented at IEEE-NANO' 2001, the *First IEEE Conference on Nanotechnology*, Outrigger Wailea Resort, Maui, Hawaii, October 2001.
- Wolfgang Porod, (Invited), "Circuit-Level Approaches for Field-Coupled Nano-Structures," presented at the *Molecular Architecture Workshop*, University of Notre Dame, Indiana, November 2001.
- Wolfgang Porod, György Csaba, and Arpad I. Csurgay, (Invited), "Field-Coupled Devices for Nanoelectronic Integrated Circuits," presented at the *First International Workshop on Quantum Dots for Quantum Computing and Classical Size Effect Circuits*, Kochi, Japan, January 2002.
- György Csaba and Wolfgang Porod, "Design and Realizability of Logic Devices Based on Field-Coupled Nanomagnets," presented at the *March Meeting of the American Physical Society*, Indianapolis, Indiana, March 2002.
- Costa Gerousis, Stephen M. Goodnick, Wolfgang Porod and Arpad I. Csurgay, "Simulation of Single-Electron Tunneling Transistor Circuits," presented in the Tutorial Session 'Nanoelectronic Circuits and Systems' at the *2002 IEEE International Symposium on Circuits and Systems*, Scottsdale, Arizona, May 2002.
- Wolfgang Porod and Arpad I. Csurgay, "The Circuit Paradigm in the Design of Systems Composed of Field-Coupled Nanodevices, presented in the Special Session 'Towards Nanoelectronic Integrated Circuits' at the *2002 IEEE International Symposium on Circuits and Systems*, Scottsdale, Arizona, May 2002.
- Costa Gerousis, Stephen M. Goodnick, Wolfgang Porod and Arpad I. Csurgay, "Simulation of Single-Electron Tunneling Transistor Circuits," presented in the Special Session 'Towards Nanoelectronic Integrated Circuits' at the *2002 IEEE International Symposium on Circuits and Systems*, Scottsdale, Arizona, May 2002.
- G. Csaba, A. Imre, G. H. Bernstein, W. Porod, and V. Metlushko, "Nanocomputing by Field-Coupled Nanomagnets," poster presented at the *2002 Silicon Nanoelectronics Workshop*, Honolulu, Hawaii, June 2002.
- Wolfgang Porod and Arpad I. Csurgay, (Invited), "Field-Coupled Devices for Nanoelectronic Integrated Circuits," presented at the *Italian Physical Society (INFM) Meeting*, Bari, Italy, June 2002.
- Wolfgang Porod, György Csaba, and Arpad I. Csurgay, (Plenary Talk), "The Role of Field Coupling in Nano-Scale Cellular Nonlinear Networks," presented at the *7th IEEE International Workshop on Cellular Neural Networks and their Applications (CNNA 2002)*, Frankfurt/Main, Germany, July 2002.
- G. Csaba, A. Imre, G. H. Bernstein, W. Porod, and V. Metlushko, "Signal Processing with Coupled Ferromagnetic Dots," presented at IEEE-NANO' 2002, the *Second IEEE Conference on Nanotechnology*, Washington, D.C., August 2002.

- Arpad I. Csurgay and Wolfgang Porod, "The Circuit Paradigm in Modeling Coupled Nanomechanic-Nanoelectronic Dynamics," presented at IEEE-NANO' 2002, the *Second IEEE Conference on Nanotechnology*, Washington, D.C., August 2002.
- Wolfgang Porod, (Invited), "Nanotechnology for Imaging: Opportunities and Challenges," presented at the NANO 2002 Workshop: Data Analysis and Imaging, Institute for Pure and Applied Mathematics (IPAM) at UCLA, Los Angeles, California, November 2002.
- Wolfgang Porod, (Keynote Talk), "Nanoelectronics: Opportunities and Challenges," presented as part of the IEEE Circuits and Systems Society Latin American Tour (Distinguished Lecturer Program), INAOE – National Institute for Astrophysics and Optics and Electronics, Puebla, Mexico, November 2002.
- Wolfgang Porod, "Physical Structures for Computation," presented at the *Twenty-Five Years of Ultra-Small Electronics Research (USER)* meeting, Kohala Coast, Hawaii, November 2002.
- W. Porod and A. I. Csurgay, "Mathematical Modeling for Physically-Coupled Nanostructures," presented at the 4th Symposium on Mathematical Modeling (MATHMOD-4), Vienna, Austria, February 2003.
- Wolfgang Porod, (Invited Panelist), "Biologically-Inspired Cellular Machine Architectures," *NBIC Convergence (Nanotechnology, Biotechnology, Information Technology, and Cognitive Science)*, UCLA, Los Angeles, California, February 2003.
- G. Csaba, A. Imre, G. H. Bernstein, V. Metlushko, and W. Porod, "Application of Magnetic Rings for Field-Coupled Computing," presented at the *Fourth International Symposium on Nanostructures and Mesoscopic Systems (NanoMES)*, Tempe, Arizona, February 2003.
- Wolfgang Porod, (Invited Plenary Speaker), "Overview and Challenges of Nanotechnology," and "Advances of Nanotechnology: Nanotransistors and BioSensors," presented at the *27th Annual Great Lakes Biomedical Conference (GLBC)*, Racine, Wisconsin, April 2003.
- G. Csaba and W. Porod, "Restoration of Magnetization Distributions from Joint Magnetic Force Microscopy Measurements and Micromagnetic Simulations," presented at the *9th International Workshop on Computational Electronics (IWCE-9)*, Frascati (Rome), Italy, May 2003.
- A. Imre, G. Csaba, V. Metlushko, G. H. Bernstein, and W. Porod, "Switching Behavior of Magnetically-Coupled Rings," poster presented at the *2003 Silicon Nanoelectronics Workshop*, Kyoto, Japan, June 2003.
- Wolfgang Porod (Invited Plenary Panel), "Technical Directions Followed," presented at the *NanoEngineering World Forum*, Boston, Massachusetts, June 2003.
- Wolfgang Porod (Invited), "Quantum-Dot Cellular Automata: Emerging Nanoelectronic Device Technologies," presented at the *NanoEngineering World Forum*, Boston, Massachusetts, June 2003.
- Wolfgang Porod, Gary Bernstein, Patrick Fay, and Arpad Csurgay, "Toward Hyperspectral Nanoscale Sensor Arrays for CNN-UM," presented at the *CNN Technology Assessment Meeting*, Budapest, Hungary, July 2003.
- Balazs Rakos, Arpad Csurgay, and Wolfgang Porod, "Computing with Coulomb-Coupled and Pulse-Driven Molecular Arrays," presented at the *13th International Conference*

on Nonequilibrium Carrier Dynamics in Semiconductors – HCIS13, Modena, Italy, July 2003.

- Balazs Rakos, Arpad Csurgay, and Wolfgang Porod, “Computations by Pulse-Driven Quantum-Dot and Molecular Arrays,” presented at the *2nd International Workshop on Quantum Dots for Quantum Computing – IWQDQC*, Notre Dame, Indiana, August 2003.
- G. Csaba and W. Porod, “Field-Coupled Computing by Molecular Magnets,” poster presented at the *2nd International Workshop on Quantum Dots for Quantum Computing – IWQDQC*, Notre Dame, Indiana, August 2003.
- A. Imre, G. Csaba, A. Orlov, G. Bernstein, W. Porod, and V. Metlushko, “Investigation of Antiferromagnetic Ordering along Chains of Coupled Nanomagnets,” presented at the *IEEE International Conference on Nanotechnology – IEEE-NANO 2003*, San Francisco, California, August 2003.
- S. Baglio, S. Castorina, L. Fortuna, G. Bernstein, and W. Porod, “Integrated Optical Nanosystems with an Embedded In-Line Thermo-Optic Modulator,” presented at the *IEEE International Conference on Nanotechnology – IEEE-NANO 2003*, San Francisco, California, August 2003.
- U. Welp, V.V. Vlasko-Vlasov, G. Crabtree, M. Grimsditch, V. Novosad, J. Hiller, N. Zaluzec, B. Ilic, Xiaobin Zhu, P. Grütter, G. Csaba, A. Imre, G. Bernstein, W. Porod, J. Bekaert, V. Moshchalkov, Y. Bruynseraede, and V. Metlushko, “High-density Arrays of Magnetic Ring Elements,” presented at the *IEEE International Conference on Nanotechnology – IEEE-NANO 2003*, San Francisco, California, August 2003.
- Wolfgang Porod and Arpad Csurgay, “Emerging Nanoelectronic Device and Circuit Technologies,” presented in the Special Session ‘Nanoelectronic Circuits’ at the *European Conference on Circuit Theory and Design - ECCTD’03*, Krakow, Poland, September 2003.
- G. Csaba, A. Imre, G. Bernstein, A. Csurgay, and W. Porod, “Circuit Simulations for Single-Domain Field-Coupled Nanomagnets,” presented in the Special Session ‘Nanoelectronic Circuits’ at the *European Conference on Circuit Theory and Design - ECCTD’03*, Krakow, Poland, September 2003.
- Stephen M. Goodnick, Costa Gerousis, and Wolfgang Porod, “Simulation of Single-Electron Transistor CNN Cells,” presented in the Special Session ‘Nanoelectronic Circuits’ at the *European Conference on Circuit Theory and Design - ECCTD’03*, Krakow, Poland, September 2003.
- Wolfgang Porod, (Invited Participant), *1st Annual National Academies Keck Futures Initiative Conference*, Arnold & Mabel Beckman Center, Irvine California, November 2003.
- G. Csaba and W. Porod, “Logic Devices Built from Molecular Magnets,” presented at the *joint 6th International Conference on New Phenomena in Mesoscopic Structures and the 4th International Conference on Surfaces and Interfaces in Mesoscopic Devices – NPMS-6/SIMD-4*, Maui, Hawaii, December 2003.
- A. Imre, G. Csaba, A. Orlov, H. Bernstein, W. Porod, and V. Metlushko, “Investigation of Shape-Dependent Switching of Coupled Nanomagnets,” presented at the *joint 6th International Conference on New Phenomena in Mesoscopic Structures and the 4th International Conference on Surfaces and Interfaces in Mesoscopic Devices – NPMS-6/SIMD-4*, Maui, Hawaii, December 2003.

- B. Rakos, A. Csurgay, and W. Porod, "Restoration of the Quantum-Mechanical Coherence in Two-State Quantum Systems," poster presented at the *joint 6th International Conference on New Phenomena in Mesoscopic Structures and the 4th International Conference on Surfaces and Interfaces in Mesoscopic Devices – NPMS-6/SIMD-4*, Maui, Hawaii, December 2003.
- L. Zhou, A. Imre, G. Csaba, A. Orlov, H. Bernstein, and W. Porod, "Magnetoresistive Measurement of Patterned Nanomagnet Films," poster presented at the *joint 6th International Conference on New Phenomena in Mesoscopic Structures and the 4th International Conference on Surfaces and Interfaces in Mesoscopic Devices – NPMS-6/SIMD-4*, Maui, Hawaii, December 2003.
- Wolfgang Porod, "Reversibility, Maxwell's Demon, and Computation," presented at the *34th Winter Colloquium on the Physics of Quantum Electronics*, Snowbird, Utah, January 2004.
- V. Metlushko, U. Welp, V. Vlasko-Vlasov, G. Crabtree, M. Grimsditch, V. Novosad, J. Hiller, N. Zaluzec, P. Vavassori, B. Ilic, Xiaobin Zhu, P. Grütter, A. Imre, G. H. Bernstein, W. Porod, J. Bekaert, V. V. Moshchalkov, and Y. Bruynseraede, (Invited), "Magnetic Ring Devices for Memory and Logic Applications," *IEEE Nanoscale Devices and System Integration (NDSI) 2004*, Miami, Florida, February, 2004.
- Wolfgang Porod, (Invited Panelist), "Biologically-Inspired Cellular Machine Architectures," *NBIC Convergence (Nanotechnology, Biotechnology, Information Technology, and Cognitive Science)*, New York City, New York, February 2004.
- Wolfgang Porod, (Invited Panelist), "New Era of Technology" Forum, *2004 IEEE International Symposium on Circuits and Systems (ISCAS)*, Vancouver, Canada, May 2004.
- Gy. Cserey, A. Falus, W. Porod, and T. Roska, "An Artificial Immunesystem for Visual Applications with CNN-UM," presented at the *2004 IEEE International Symposium on Circuits and Systems (ISCAS)*, Vancouver, Canada, May 2004.
- Alexandra Imre, György Csaba, Gary Bernstein, Wolfgang Porod, and Vitali Metlushko, "Shape Engineering of Dipole-Coupled Nanomagnets for Magnetic Logic," poster presented at the *Metallic Multilayers Symposium*, Boulder, Colorado, June 2004.
- Alexandra Imre, György Csaba, Gary Bernstein, Wolfgang Porod, and Vitali Metlushko, "Shape Engineering of Dipole-Coupled Nanomagnets for Magnetic Logic Devices," poster presented at the *2004 Silicon Nanoelectronics Workshop*, Honolulu, Hawaii, June 2004.
- A. Imre, G. Csaba, L. Zhou, A. Orlov, G. H. Bernstein, W. Porod, and V. Metlushko, "Shape Engineering of Dipole-Coupled Nanomagnets for Magnetic Logic Devices," poster presented at the *62nd Device Research Conference (DRC)*, University of Notre Dame, Indiana, June 2004.
- Wolfgang Porod, (Invited Participant), "Magnetic QCA," presented at the *ONR Spintronics/Nanomagnetics Workshop*, UC Santa Barbara, California, June 2004.
- Wolfgang Porod and Arpad I. Csurgay, (Plenary Talk), "Emerging Nanoelectronic Device and Circuit Architectures," presented at the *8th IEEE International Workshop on Cellular Neural Networks and their Applications (CNNA 2004)*, Budapest, Hungary, July 2004.
- J. McRaven, M. Scheutz, Gy. Cserey, V. Andronache, and W. Porod, "Fast Detection and Tracking of Faces in Uncontrolled Environments for Autonomous Robots Using

- the CNN-UM,” presented at the 8th *IEEE International Workshop on Cellular Neural Networks and their Applications (CNNA 2004)*, Budapest, Hungary, July 2004.
- Wolfgang Porod, Gary Bernstein, Patrick Fay, and Arpad Csurgay, “Toward Hyperspectral Nanoscale Sensor Arrays for CNN-UM,” presented at the *Technology Assessment Meeting on Cellular (CNN) Sensing–Computing–Activating Technology*, Budapest, Hungary, July 2004.
- Wolfgang Porod, (Invited Panelist), “Teaching Nanotechnology,” *Fourth IEEE International Conference on Nanotechnology – IEEE-NANO 2004*, Munich, Germany, August 2004.
- Wolfgang Porod and Arpad I. Csurgay, (Invited), “Circuit Models for Physically-Coupled Nanoelectronic Device Architectures,” presented at the *Fourth IEEE International Conference on Nanotechnology – IEEE-NANO 2004*, Munich, Germany, August 2004.
- A. Imre, L. Zhou, A. Orlov, G. Csaba, G. H. Bernstein, W. Porod, and V. Metlushko, “Application of mesoscopic magnetic rings for logic devices,” presented at the *Fourth IEEE International Conference on Nanotechnology – IEEE-NANO 2004*, Munich, Germany, August 2004.
- G. Csaba, P. Lugli, W. Porod, “Power Dissipation in Nanomagnetic Logic Devices,” presented at the *Fourth IEEE International Conference on Nanotechnology – IEEE-NANO 2004*, Munich, Germany, August 2004.
- Gyorgy Cserey, Andras Falus, Wolfgang Porod, and Tamas Roska, “An Artificial Immune System based Visual Analysis Model and its Real-Time Terrain Surveillance Application,” presented at the *3rd International Conference on Artificial Immune Systems*, Catania, Italy, September 2004
- E. Horváth, A. Imre, A. L. Tóth, and W. Porod, “Application of Focused Ion Beam Milling for Shaping Nanomagnets,” poster presented at the *2nd Szeged International Workshop on Advances in Nanoscience*, Szeged, Hungary, October 2004.
- G. Csaba, P. Lugli, A. Csurgay, and W. Porod, (Invited), “Simulation of Power Gain and Dissipation in Field-Coupled Nanomagnets,” presented at the *10th International Workshop on Computational Electronics (IWCE-10)*, Purdue University, Indiana, October 2004.
- G. H. Bernstein, A. Imre, V. Metlushko, A. Orlov, L. Zhou, L. Ji, G. Csaba, and W. Porod, (Invited), “Magnetic QCA systems,” presented at *European Micro and Nano Systems 2004 – EMN04*, ESIEE, Noisy le Grand, Paris, France, October 2004.
- Wolfgang Porod, “Nanotechnology: Shaping the World Atom by Atom,” Speaker Club Series, The Metropolitan Club, New York, New York, November 2004.
- Gary H. Bernstein and W. Porod, “Nanotechnology: Overview and Relevance to Biology,” presented at the *2004 National Association for Biology Teachers (NABT) National Convention*, Chicago, Illinois, November 2004.
- Wolfgang Porod, (Invited Participant), *2nd Annual National Academies Keck Futures Initiative Conference*, Arnold & Mabel Beckman Center, Irvine California, November 2004.
- Alexandra Imre, Gyorgy Csaba, Paolo Lugli, Gary Bernstein, V. Metlushko, and W. Porod, “Magnetic Logic Devices,” presented at the *Advanced Heterostructure Workshop*, Kohala Coast, Hawaii, December 2004.

- Pratyush Das Kanungo, Alexandra Imre, Bin Wu, Alexei O. Orlov, Gregory L. Snider, Wolfgang Porod, and Nicholas P. Carter, "Gated Hybrid Hall Effect Device on Silicon," poster presented at the *Fifth International Conference on Low Dimensional Structures and Devices (LDSD)*, Cancun, Mexico, December 2004.
- Pashang Esfandiari, G. Bernstein, P. Fay, W. Porod, B. Rakos, A. Zarandy, B. Berland, L. Boloni, G. Boreman, B Lail, B. Monacelli, and A. Weeks, (Invited), "Tunable Antenna-Coupled Metal-Oxide (MOM) Uncooled IR Detector," presented at the *SPIE Defense and Security Symposium 2005, Infrared Technology and Applications Conference*, Orlando, Florida, March 2005.
- Alexandra Imre, Lili Ji, Gyorgy Csaba, Alexei Orlov, Gary H. Bernstein, and Wolfgang Porod, (Invited), "Magnetic Logic Devices Based on Field-Coupled Nanomagnets," presented at the *Second Conference on Nanoscale Devices & System Integration (NDSI 2005)*, Houston, Texas, April 2005.
- Wolfgang Porod., (Plenary Presentation), "Emerging Nanoelectronic Device Technologies," presented at the *SPIE Microtechnologies for the New Millennium 2005 Symposium*, Sevilla, Spain, May 2005.
- Wolfgang Porod, Alexandra Imre, Gyorgy Csaba, Lili Ji, Alexei Orlov, Gary H. Bernstein, and Vitali Metlushko, "Field-coupled nanomagnets for logic applications," presented at the *SPIE Microtechnologies for the New Millennium 2005 Symposium, Nanotechnology conference (EMT103)*, Sevilla, Spain, May 2005.
- Alexandra Imre, Lili Ji, György Csaba, Alexei Orlov, Gary H. Bernstein, and Wolfgang Porod, "Logic gates featuring field-coupled nanomagnets," accepted as poster at the *2005 Silicon Nanoelectronics Workshop (SNW)*, Kyoto, Japan, June 2005.
- E. Horváth, A. Imre, A. L. Tóth, and W. Porod, "Patterning of Magnetic Nanoobjects by FIB," poster presented at the *XIIth International Conference on Electron Microscopy of Solids (EM2005)*, Kazimierz Dolny, Poland, June 2005.
- Wolfgang Porod, (Plenary Presentation), "Emerging Nanoelectronic Device and Circuit Technologies," presented at the *Italian National Electrical Engineering Conference (ET 2005)*, Rome, Italy, June 2005.
- Balázs Rakos, Heng Yang, Jeffrey A. Bean, Gary H. Bernstein, Patrick Fay, and Wolfgang Porod, "Investigation of Antenna-Coupled MOM Diodes for Infrared Sensor Applications," presented at the *14th International Conference on Nonequilibrium Carrier Dynamics in Semiconductors*, Chicago, Illinois, July 2005.
- Wolfgang Porod, (Invited Presentation), "Emerging Nanoelectronic Device Technologies," presented at the workshop on 'Nanotechnology and Advanced Materials' at the *2005 IEEE International Symposium on Electromagnetic Compatibility*, Chicago, Illinois, August 2005.
- Árpád I. Csurgay, Wolfgang Porod and Stephen Goodnick, (Plenary Presentation), "The Circuit Paradigm in Nanoelectronics – Field-Coupled and Hybrid Nanoelectronic Circuits," presented at the *European Conference on Circuit Theory and Design - ECCTD'05*; Cork, Ireland, August/September 2005.
- Gary H. Bernstein, Alexandra Imre, Koshala Sarveswaran, Marya Lieberman, and Wolfgang Porod, (Invited Talk), "Fabrication and Demonstration of Quantum-Dot Cellular Automata Systems," presented at the *2005 International Conference on Solid State Devices and Materials (SSDM-2005)*, Kobe, Japan, September 2005.

- Alexandra Imre, Gyorgy Csaba, Lili Ji, Alexei Orlov, Gary H. Bernstein, and Wolfgang Porod, "Magnetic Logic Gates Based on Field-Coupled Nanomagnets," presented at the the *50th Conference on Magnetism and Magnetic Materials (MMM 2005)*, San Jose, California, October/November 2005.
- L. Ji, E. Varga, A. Wolf, A. Imre, G. H. Bernstein, A. Orlov, and W. Porod, "Investigation of different wire geometries for magnetization reversal and domain-wall trapping in submicron permalloy wires," poster presented at the the *50th Conference on Magnetism and Magnetic Materials (MMM 2005)*, San Jose, California, October/November 2005.
- Lili Ji, Alexandra Imre, Edit Varga, Alexei Orlov, Gary H. Bernstein, and Wolfgang Porod, "Domain Wall Trapping in Magnetic Wires by Nanomagnets," presented at the *joint 7th International Conference on New Phenomena in Mesoscopic Structures and the 5th International Conference on Surfaces and Interfaces in Mesoscopic Devices – NPMS-7/SIMD-5*, Maui, Hawaii, November/December 2005.
- Jeffrey Bean, John McRaven, Balázs Rakos, Gary Bernstein, Patrick Fay, Wolfgang Porod, "Antenna-Coupled Metal-Oxide-Metal Diodes for Terahertz Detection," poster presented at the *joint 7th International Conference on New Phenomena in Mesoscopic Structures and the 5th International Conference on Surfaces and Interfaces in Mesoscopic Devices – NPMS-7/SIMD-5*, Maui, Hawaii, November/December 2005.
- Alexandra Imre, Lili Ji, Gyorgy Csaba, Alexei Orlov, Gary H. Bernstein, and Wolfgang Porod, (Invited), "Magnetic Logic Devices Based on Field-Coupled Nanomagnets," presented at the *International Semiconductor Device Research Symposium (ISDRS-05)*, Bethesda, Maryland, 7-9 December, 2005.
- J. Su, H. Yang, W. Porod, P. J. Fay, G. H. Bernstein, "Laterally driven electrostatic actuators with extended travel range," poster presented at the *SPIE Photonics West 2006 Symposium, MOEMS, Display, Imaging, and Miniaturized Microsystems Conference*, San Jose, California, January 2006.
- H. Yang, J. Su, W. Porod, P. J. Fay, G. H. Bernstein, "Design and fabrication of a tunable Fabry-Perot interferometer/ photodiode (FPI/PD) spectral image sensor for visible wavelengths," presented at the *SPIE Photonics West 2006 Symposium, MOEMS, Display, Imaging, and Miniaturized Microsystems Conference*, San Jose, California, January 2006.
- B. Hegyi, A. Csurgay, and W. Porod, "Investigation of the nonlinearity properties of the DC I-V characteristics of metal- insulator-metal (MIM) tunnel diodes with double-layer insulators," submitted to the *11th International Workshop on Computational Electronics (IWCE-11)*, Vienna, Austria, May 2006.
- G. Csaba, P. Lugli, L. Ji, and W. Porod, "Micromagnetic Simulation of Current-Driven Domain Wall Propagation," submitted to the *11th International Workshop on Computational Electronics (IWCE-11)*, Vienna, Austria, May 2006.
- Gábor Matyi, Wolfgang Porod, Árpád I. Csurgay, "Nanoantenna Design for THz-band Rectification," submitted to the *11th International Workshop on Computational Electronics (IWCE-11)*, Vienna, Austria, May 2006.
- E. Varga, A. Imre, L. Ji, and W. Porod, "Simulation of magnetization reversal and domainwall trapping in submicron NiFe wires with different wire geometries," submitted to the *11th International Workshop on Computational Electronics (IWCE-11)*, Vienna, Austria, May 2006.

