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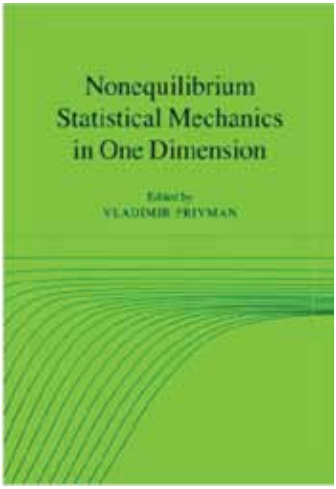
Obituary for Professor Vladimir Privman

It is with great sadness that we mark the passing of Professor Vladimir Privman, Director of the Clarkson University Center for Quantum Device Technology, Robert A. Plane Professor of Physics with joint appointments in the departments Chemistry & Biomolecular Science and Electrical & Computer Engineering. His research interests spanned broad areas of advanced technology, including bio-inspired information processing, synthesis of colloids and nanoparticles, kinetics of surface processes at the nanoscale, physics of semiconductor devices, spintronics, quantum computing, statistical mechanics, chemical kinetics, and surface and polymer science.

Professor Privman began receiving notice early in his career, receiving the Petroleum Research Fund Young Investigator Award, and Clarkson University's Graham Award for Young Faculty Excellence. He contributed to a wide range of scientific fields, and was a lecturer or moderator at national and international conferences every year. He (co-)authored over 280 research papers, major reviews, and books.

He served on numerous boards of scientific journals, and national funding

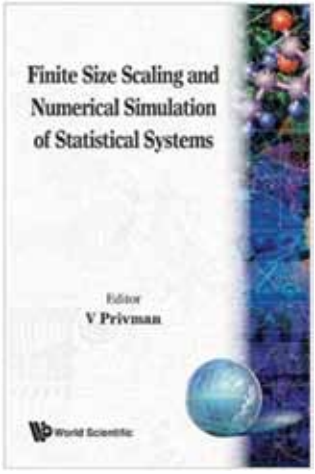
agencies, and received an American Physical Society Outstanding Referee Award. In 2005 he was named a Fellow of the American Physical Society, which recognized his fundamental contributions and professional leadership in statistical physics, surface, colloid and polymer science, and quantum information science. In 2010 he was named an IARIA Fellow.



Over the past ten years, Professor Privman has been among the key players in the Unconventional Computing field. He particularly contributed to the integration of biomolecular computing and actuation, implementation of biochemical logical gates, biomolecular signal processing, networked enzymatic gates with filtering, associative memory based on enzymatic cascades, biochemical logic for drug release, biomolecular filters for signal separation, enzymatic systems for information processing, and digital biosensors. Professor Privman's contributions to quantum computing were in the evaluation of decoherence for quantum computing architectures, modeling of semiconductor spintronics, quantum control, nuclear spin based memory and logic in quantum hall semiconductors, Hamiltonians for quantum computing, and three-spin XOR gate.

In 2005 Professor Privman edited the Special Issue containing papers from the 2004 IEEE Nanotechnology Council (NTC) Quantum Device Technology Workshop, which was held on the campus of Clarkson University, Potsdam, NY, May 17–21, 2004. The contents of the issue demonstrated breakthroughs in several fields of novel materials and devices, including biochemical logical gates, styrene butadiene rubber nanocomposites, swarms of microscale nanorobots, robots for target therapies, biomolecular motors, magnetoresistive detection of nanoparticles, and self-assembly of quantum dots. In 2017 the *International Journal of Parallel, Emergent and Distributed Systems* (vol. 32, issue 1) published a special issue "*Signal processing, biosensing, and computing with bio-inspired and biochemical systems*" com-

piled and edited by Professor Privman. He presented the field of unconventional computing with such diverse contributions as reaction-diffusion chemistry implementation of neural networks, fluidic infrastructure for enzyme-based Boolean logic circuits, architectures of nano-biointerfaces, modelling of enzymatic signal processing, wireless sensor networks with biological cultures, biosensors and memristors in networks of plants, oscillator dynamics of slime mold, insulin biosensor, and biocomputing in forensic analysis.



Professor Privman was highly regarded by his peers and students. He was proud of his trainee's successes and promotions, and took an active role in mentoring undergraduate, graduate, postdoc, and senior researchers in several departments at Clarkson University. He enjoyed training and collaborating with scientists throughout the United States and internationally. His passing is a great loss to the scientific community.

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