Prof. Dr. Anna T. Lawniczak, Applied Mathematician

Biography

Prof. Dr. Anna T. Lawniczak holds a M.Eng. (summa cum laude) in Mathematics from the Institute of Mathematics, Faculty of Fundamental Problems in Technology, Wroclaw University of Technology (Poland) and a Ph.D. in Mathematics from Southern Illinois University (USA). She has been a professor at Louisiana State University (Baton Rouge, LA), at the University of Toronto, and since 1989 at the University of Guelph.

Dr. Lawniczak has held a number of visiting positions at various institutions. She has been a "visitor", a "collaborator", and a "consultant" at the Center for Nonlinear Studies of Los Alamos National Laboratory. Dr. Lawniczak has been both "program visitor" and "non-program visitor" at The Fields Institute for Research in Mathematical Sciences, both in Waterloo and in Toronto, where she has organised various scientific activities and has served on the Board of Directors and on the Council. She also has been a "program fellow" at Institute for Pure and Applied Mathematics (IPAM), University of California, Los Angeles, USA. Currently, Dr. Lawniczak is also a Principal Investigator in Mathematics at the Energenius Centre for Advanced Nanotechnology, University of Toronto and Member of the Research Council of the Hugo Steinhaus Center, Wroclaw University of Technology, Poland.

Dr. Lawniczak was invited to visit various universities (i.e. University of Bonn, Cecter for Stochastic Processes at the University of North Carolina, Bartol Research Institute at the University of Delaware, the University of Roma, etc).

Dr. Lawniczak has been president of CAIMS (Canadian Applied and Industrial Society) and active in SIAM and IEEE. She is also a member of other scientific societies such as AMS, APS, CMS, IMACS, and SMB. As a result of her work, Dr. Lawniczak has been made a Senior Member of the IEEE, a Fellow of The Fields Institute For Research In Mathematical Sciences, and has received the CAIMS/SCMAI Arthur Beaumont Distinguished Service Award, for service to the Applied & Industrial Mathematics community.

Prof. Lawniczak has been an invited speaker at various scientific conferences, has authored and co-authored many scientific papers, and has been asked to referee the work of other scientists in her area of expertise.

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Education

Ph.D. Department of Mathematics, Southern Illinois University, Carbondale, Illinois, USA
M.Sc. (Eng.), Faculty of Fundamental Problems of Technology, Wroclaw University of Technology, Wroclaw, Poland

Web Pages

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- http://www3.sympatico.ca/alawnicz/
- http://anna.lawniczak.googlepages.com/

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Research

Mathematical Modeling, Simulation, & Analysis of Dynamics of Complex Natural, Engineering & Social Systems

- Preferred Modeling & Simulation Methodology
  - Individually Based Simulation Models
  - Lattice/Graph Gas Cellular Automata
  - Agent Based Simulations
  - Cellular Automata
- Recent Areas of Application
  - Data Communication Networks
  - Epidemics and Vaccination Strategies
  - Formation of Semiconductor Nanostructures
  - Biological Systems
  - Reaction-Diffusion Systems
- Analysis of Dynamics of
  - Self-organization Processes
  - Multi-scale phenomena
  - Pattern Formation
  - Phase Transition

Theory & Application of Spatially Extended Discrete Dynamical Systems, Finite State Automata, Parallel and Distributed Algorithms, Statistical Physics, Time Series Analysis, Probability Theory & Stochastic Processes

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Awards & Honours

- 2003, June **Senior Member of IEEE**
  (only 7% of approximately 382,000 members hold this grade)

  As per IEEE www page http://www.ieee.org/organizations/rab/md/smprogram.html
  "The professional recognition of your peers for technical and professional excellence."
  "IEEE Bylaw I-105.3 sets forth the criteria for elevation to Senior Member Grade, as follows:
  "… a candidate shall be an engineer, scientist, educator, technical executive or originator in **IEEE-designated fields** . The candidate shall have been in **professional practice for at least ten years** and shall have shown **significant performance** over a period of **at least five of those years**."

- 2003, June CAIMS/SCMAI **The Arthur Beaumont Distinguished Service Award**
  Citation: " The Arthur Beaumont Distinguished Service Award is presented to Dr. Anna Lawniczak of the University of Guelph in recognition of her outstanding service to the Society over the years 1996 to 2003, including four years as President. Dr. Lawniczak's legacy to the Society includes a new constitution, incorporation under the Canada Corporations Act, a change of name of the Society reflecting greater involvement in industrial mathematics, new liaisons with other national and international applied mathematics societies and the first CAIMS-SIAM joint Annual Meeting. "
  http://www.caims.ca/Awards/lawniczakcit.html
  http://www.siam.org/prizes/prizes03.htm

- 2003, June Named as a **Fields Institute Fellow** , lifetime designation

  As per The Fields Institute www page
  http://www.fields.utoronto.ca/aboutus/fieldsinstitutefellows/index.html "This lifetime appointment is conferred on certain individuals who have made outstanding contributions to the Fields Institute, its programs, and to the Canadian mathematical community."

- 1998-2001 **President** of CAIMS/SCMAI(Canadian Applied and Industrial Mathematics Society)

- 1997-1998 **President** of CAMS/SCMA(Canadian Applied Mathematics Society)

- 1977 **Summa cum laude** M. Eng. In Math. Degree, Wroclaw University of Technology, Poland

- 1977 **First Prize** of Polish Mathematical Society in the competition for **"The Best Master Thesis in Probability Theory and Applied Mathematics"**

- 1972-1977 Five **President Special Scientific Awards** , Wroclaw University of Technology, Poland