

## Report on CAIMS•SCMAI 2005

by Abba Gumel

The 26th annual meeting of the Canadian Applied and Industrial Mathematics Society (CAIMS) was held at the Fort Garry campus of the University of Manitoba, Winnipeg, June 16-18, 2005. The meeting featured six themes: Dynamical Systems and Mathematical Biology, Signal Processing, Bioinformatics, Mathematics in Industry, Computational Mathematics, and Pattern Recognition. These themes were chosen not only to reflect some of the main current research interests of CAIMS•SCMAI members and the wider global applied and industrial mathematics community, but also to reflect and highlight the research expertise and interests of mathematical scientists within the University of Manitoba and the local research community and industry.

The meeting was organized by Abba Gumel and Rob McLeod, both of the Institute of Industrial Mathematical Sciences, University of Manitoba (IIMS), in conjunction with members of the Local Organizing Committee consisting of affiliates of the IIMS from around the University of Manitoba and local research institutions such as the Institute for Biodiagnostics, National Research Council and Atomic Energy of Canada.

There were approximately 60 speakers and 130 participants at CAIMS•SCMAI 2005. Furthermore, 20 graduate students and post-doctoral fellows presented posters during the Poster Session held concurrently with the opening night stand-up reception. The banquet, on the second night of the conference, took place at the historic Fort Gibraltar. This Fort, which was once the centre of the fur trade at the Forks in the 18th and 19th centuries, provided a distinct “Manitoba flavour” at the conference. The menu was also uniquely Manitoban, with roast bison tenderloin served with hunter sauce as the main course.

### Themes, Organizers and Plenary Speakers

#### Dynamical Systems and Mathematical Biology

Organizers: William F. Langford (Guelph) and Pauline van den Driessche (Victoria)

Plenary Speaker: **Michael Mackey** (McGill), *Modelling the dynamics of gene regulatory networks*

#### Signal Processing

Organizer: Witold Kinsner (Manitoba)

Plenary Speaker: **Simon Haykin** (McMaster), *Large-scale dynamical systems*

#### Bioinformatics

Organizers: Steven Wang (York) and Augustine Wong (York)

Plenary Speaker: **Ruben Zamar** (UBC), *A linear grouping algorithm*

Mathematics in Industry

Organizers: Abba Gumel (Manitoba, IIMS) and John Stockie (SFU)

Plenary Speakers: **Heinz Engl** (Austrian Academy of Sciences), *Hot stuff: from iron and steel making via inverse problems to finance and*

**Sam Howison** (Oxford), *Challenges and opportunities for mathematicians in the finance industry*

Computational Mathematics

Organizer: Raymond Spiteri (Dalhousie)

Plenary Speaker: **Sebastian Reich** (Imperial College), *Numerical resolution of mixing in the atmosphere*

Pattern Recognition

Organizers: Chris Bowman (Institute for Biodiagnostics, NRC) and Richard Baumgartner (Institute for Biodiagnostics, NRC)

Plenary Speaker: **Tin Kam Ho** (Bell Laboratories), *Geometrical complexity of classification problems*

In addition to the above well-chosen themes and collection of a very distinguished list of plenary speakers, the Winnipeg meeting introduced an Industry/Academia Dialogue on Day 2 of the conference. The Dialogue served as a forum for members of the two communities to share ideas and challenges pertaining to various aspects of industrial mathematics (particularly in terms of teaching and research collaborations). The Dialogue, very ably moderated by William Langford (Guelph University), featured four distinguished panellists, representing various institutes around the world interested in industrial mathematics, namely Heinz Engl (Director, RICAM, Austrian Academy of Sciences, Austria), Sam Howison (Director, Oxford Centre for Industrial and Applied Mathematics, Oxford University, UK), Barbara Keyfitz (Director, Fields Institute for Research in Mathematical Sciences, Canada) and John Stockie (Associate Scientific Director, MITACS, Canada). The Dialogue, which was well-attended by members of the two communities, is in line with one of the key mandates of the IIMS, which is to enhance greater interaction and collaboration between mathematical scientists at the University of Manitoba and members of the industry.

**Awards of Prizes:**

The following prizes were given during CAIMS 2005:

1. Research Prize: Michel Fortin (Laval University): *Contact problems in solid mechanics*
2. Doctoral Dissertation Awards (two co-winners) Ovidiu Voiteu (University of Alberta): *Neural network approach for nonlinear dynamics prediction and feature extraction* Lindsay Anderson (University of Western Ontario): *A hybrid model for electricity spot prices*
3. Arthur Beaumont Distinguished Service Award: Sue Ann Campbell (University of Waterloo)
4. Best Poster Award: Adenike Bamgbade (Institute for Biodiagnostics, National Research Council, Winnipeg).

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CAIMS•SCMAI 2005 Photo Gallery

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Bill Langford presents an award to the Institute of Industrial Mathematical Sciences for hosting the 26th CAIMS•SCMAI meeting. Abba Gumel accepted the award on behalf of the Institute.



Bill Langford presents an award to Michel Fortin, winner of the CAIMS•SCMAI Research Prize

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CAIMS•SCMAI 2005 Photo Gallery

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John Stockie presents a doctoral dissertation award to Lindsay Anderson



John Stockie presents a doctoral dissertation award to Ovidiu Voitcu



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CAIMS•SCMAI 2005 Photo Gallery

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Sue Ann Campbell, recipient of the Arthur Beaumont Distinguished Service Award



Michael Mackey, one of the plenary speakers, talking about the important role played by physicists in the early development of Mathematical Biology

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CAIMS•SCMAI 2005 Photo Gallery

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Rod Edwards, Ken Jackson and Bill Langford presiding over the AGM.



2005 CAIMS•SCMAI AGM



Group photo of people attending CAIMS•SCMAI 2005



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CAIMS•SCMAI 2005 Photo Gallery

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CAIMS•SCMAI Poster Session



CAIMS•SCMAI Poster Session



Dinner at Fort Gibraltar



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CAIMS•SCMAI 2005 Photo Gallery

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Gail Wolkowicz, Anne and Bill Langford, Abba Gumel and Sue Ann Campbell enjoy the view from the parapet



Nice place for dinner