October 11, 2006

07pims012: Validation and Verification in Mathematical Modeling and Scientific Computing

Organizers:

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Location:

UAlberta or Banff

PIMS Sites:

University of Alberta

Objectives:

The study of validation and verification (V&V) has been the subject of active research in recent years. Validation is concern to which a model is an accurate representation of the real world, and verification is a process to determine the quality of computed solution to the model. Without addressing the V&V issue, any solution presented for complex systems in science and engineering could not be accepted with confidence. The proposed workshop focuses on the interdisciplinary research in V&V, and will provide collaboration for researchers in sciences and engineering communities.

Comments:

Validation and verification (V&V) is a relatively new research field. However, its importance has been widely recognized in science and engineering communities in recent years. It should be noted that uncertainty in developing a mathematical model and errors in performing a numerical computation are unavoidable. Hence, it is a crucial step to carry out validation

and verification in solving a real world problem. The proposed workshop covers topics ranged from mathematical sciences (how to formulate V&V process) to the implementation on V&V in practical applications. We expect the workshop will attract researchers from both academic and industry. To our knowledge, this may be the first workshop focus on V&V in Canada.

Audience:

Validation and verification is an interdisciplinary research topic, and the intended participants are researchers in mathematical sciences, computational sciences and engineering. While the organizers will limit the participants to be around 50, we consider that it is important for the workshop to provide training for young researchers, and we expect 10 to 15 of the participants will be graduate students or postdoctoral fellows.

Participants:

Ivo Babuska, University of Texas at Austin, U.S.A
Roger Ghanem, University of Southern California, U.S.A
Rafi Muhanna, Georgia Institute of Technology, U.S.A
William Oberkampf, Sandia National Laboratory, U.S.A
Thomas Paez, Sandia National Laboratory, U.S.A
Raul Tempone, Florida State University, U.S.A
Barna Szabo, Washington University, St Louis, U.S.A
Serge Prudhomme, University of Texas at Austin, U.S.A
Kevin Dowding, Sandia National Laboratory, U.S.A
Huaxiong Huang, York University, Canada
Ben Lee, National Research Council, Canada
Roderick Melnik, Wilfrid Laurier University, Canada
Brian Wetton, University of British Columbia, Canada
Jianhong Wu, York University, Canada
Christina Adela Popescu, University of Alberta, Canada
Fassi Kafyeke, Bombardier Inc., Canada
Randy Goebel, iCORE, Canada
Hermann Eberl, University of Guelph, Canada
Russell C.H. Cheng, University of Southampton, U.K.
Stefan Hartman, University of Kassel, Germany
Zohar Yosibash, Ben Gurion University of the Negev, Israel
Fabio Nobile, Politecnico di Milano, Italy
Jan Chleboun, Mathematical Institute of the Academy of Sciences, Czech Republic
Li-Qun Cao, Chinese Academy of Sciences, China

Remark: The organizers suggest the above list of participations, and they include the leading researchers in V&V. The majority participants are from Canada and US, but six researchers from overseas have expressed interest to our meeting. Among the 24 suggested participants, 20 have confirmed if the meeting is held within 12 months.

Amount Requested:

20000.00

Expenditures:

The total budget for the workshop is estimated to be $35,000. We request a support of $20,000 from PIMS. The requested funding will be used to cover travel and accommodation for some invited speakers, and graduate students or postdoctoral fellows. The details will be provided later.

Income:

If the proposal is supported by PIMS, we plan to request additional funding from iCORE and University of Alberta Conference grant for $8,000 (total). We expect income from registration fees about $7,000.00

Selected Dates:

Tue, May 1, 2007
Sat, June 30, 2007