



# Mathematical Problems, Models and Methods in Biomedical Imaging

February 8 – 12, 2010

**ORGANIZING COMMITTEE:** Yair Censor (University of Haifa), Steve Jiang (University of California, San Diego), Belinda Seto (National Institutes of Health), Lei Xing (Stanford University), Hongkai Zhao (University of California, Irvine)

## Scientific Overview

Recent advances in molecular probes, personalized or individualized medicine has raised many interesting and challenging mathematical problems. The workshop's topics will include some of the current major technologies and emerging mathematical problems in biomedical imaging. The emphasis will be on the interface between Mathematics and Biomedical Imaging to promote new ideas and research at the frontiers of interdisciplinary studies. The aims of the workshop are to identify important research directions and opportunities in mathematics induced by problems coming from imaging applications, as well as to promote collaborations that will lead to better mathematically-based solutions of practical problems in biomedical imaging applications. The format of the workshop will encourage communications and collaborations between mathematicians and scientists from these fields of applications. The topics of the workshop will include, but are not limited to, mathematical aspects and practical problems in mathematics for image processing and reconstruction; mathematical problems, models and methods in biomedical imaging technologies; molecular imaging approaches (PET/SPECT/Fluorescence/ Bioluminescence); mathematical problems, models and methods in intensity-modulated radiation therapy (IMRT); and optimization techniques in inverse problems.

## Speakers

**Simon Arridge** (University College London), **Guillaume Bal** (Columbia University), **Heinz Bauschke** (University of British Columbia, Okanagan), **Regina Burachik** (University of South Australia), **Martin Burger** (Westfälische Wilhelms Universität Münster), **Tommy Elfving** (Linköping University), **Tom Goldstein** (UCLA), **Gabor Herman** (City University of New York), **Andreas H. Hielscher** (Columbia University), **Ming Jiang** (Peking University), **Steve Jiang** (University of California, San Diego), **Eva K. Lee** (Georgia Institute of Technology), **D. Russell Luke** (University of Delaware), **J. Steven Marron** (University of North Carolina, Chapel Hill), **Stanley Osher** (UCLA), **Xiaochuan Pan** (University of Chicago), **Sarah Patch** (University of Wisconsin-Milwaukee), **Mark H. Phillips** (University of Washington Medical Center), **H. Edwin Romeijn** (University of Michigan), **John Schotland** (University of Pennsylvania), **Reinhard Schulte** (Loma Linda University), **Zuowei Shen** (National University of Singapore), **Baba Vemuri** (University of Florida), **Ge Wang** (Virginia Polytechnic Institute & State University), **Lihong Wang** (Washington University in St. Louis – School of Medicine), **Ying Xiao** (Jefferson Medical College), **Lei Xing** (Stanford University), **Wotao Yin** (Rice University), **Lei Zhu** (Georgia Institute of Technology)

## Participation

Additional information about this workshop, including links to register and to apply for funding, can be found on the webpage listed below. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission, and we welcome their applications.

[www.ipam.ucla.edu/programs/bmed2010](http://www.ipam.ucla.edu/programs/bmed2010)



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