

RIMS Workshop on Inverse Problems, Medical Imaging, and Related Topics

Today, various imaging modalities exist and they have been developed with theoretical, numerical, and experimental studies on inverse problems. This time, true experts in the field of inverse problems will gather from all over the world and discuss recent advances in inverse problems, medical imaging, and related topics.

Research Institute for Mathematical Sciences, Kyoto University
From January 11 to 13 in 2023

Venue: Room 420 in RIMS and online via Zoom

Website: <http://www.mmachida.com/RIMS2023/>

Organizers: Samuli Siltanen (University of Helsinki)

Manabu Machida (Hamamatsu University School of Medicine)

January 11 (Wed)

- 9:00–9:10 Announcement (Opening)
- 9:10–9:55 Yoshifumi Saijo (Graduate School of Biomedical Engineering, Tohoku University)
Ultrasonic Measurement of Blood Flow in Cardiovascular Systems
- 10:05–10:50 Samuli Siltanen (University of Helsinki)
Special Lecture: X-ray tomography and filtered back-projection
- 11:00–11:45 Samuli Siltanen (University of Helsinki)
Electrical impedance tomography and virtual X-rays
- 13:15–14:00 Masaru Ikehata (Hiroshima University)
Prescribing a heat flux coming from a wave equation
- 14:10–14:55 Matti Lassas (University of Helsinki)
Inverse problems for graphs and discrete spaces
- 15:05–15:50 Hanne Kekkonen (Delft University of Technology)
Edge preserving random tree Besov priors

16:00–16:45 Simon Arridge (University College London)
Accelerating 4D PhotoAcoustic Tomography

January 12 (Thu)

- 9:05–9:10 Announcement
- 9:10–9:55 Xinchu Huang (The University of Tokyo)
Initial-boundary value problem for a time-fractional diffusion system and an inverse problem of determining orders
- 10:05–10:50 Andreas Hauptmann (University of Oulu & University College London)
Data-driven model corrections and learned iterative reconstruction
- 11:00–11:45 Takaaki Nara (The University of Tokyo)
On biomagnetic inverse problems: Identification of an epileptic focus using magnetoencephalography
- 13:15–14:00 Junyong Eom
Local analysis for locating a point target in time-domain fluorescence diffuse optical tomography
- 14:10–14:55 Haytham A. Ali and Hiroyuki Kudo (Faculty of Engineering, Information, and Systems, University of Tsukuba)
Parametric Level Set Methods for Limited Data CT Image Reconstruction
- 15:05–15:50 Tanja Tarvainen (University of Eastern Finland)
Bayesian approach to photoacoustic tomography
- 16:00–16:45 Tatiana A. Bubba (University of Bath)
Deeply learned regularization for limited angle computed tomography

January 13 (Fri)

- 9:05–9:10 Announcement
- 9:10–9:55 Allan Greenleaf (University of Rochester)
Bilinear operators arising in inverse scattering for the acoustic wave equation

- 10:05–10:50 Fioralba Cakoni (Rutgers University, New Brunswick)
On Non-scattering Anisotropic Inhomogeneities
- 11:00–11:45 Daisuke Kawagoe (Graduate School of Informatics, Kyoto University)
A remark on the generalized convexity condition and propagation of boundary-
induced discontinuity in stationary radiative transfer
- 11:45–11:55 Closing