



## RIMS Workshop

### "Some approaches on ill-posed problems -theory and practice-"

**Date:** January 10th, 2024 (Wed) - January 12th, 2024 (Fri)

**Venue:** Room 420, Research Institute for Mathematical Sciences, Kyoto University

**Organizers:** Daisuke Kawagoe (Kyoto University),

Yi-Hsuan Lin (National Yang Ming Chiao Tung University)

## Program

### January 10 (Wed)

9:00 — 9:10 Opening

9:10 — 10:00 Manabu Machida (Kindai University)

*A numerical scheme for severely ill-posed nonlinear inverse problems with a regularized Moore-Penrose pseudoinverse*

10:05 — 10:55 Stephen John Payne (National Taiwan University)

*Inferring properties of the human brain from clinical and experimental data*

11:00 — 11:50 Yohei Hosoe (Kyoto University)

*Control of discrete-time stochastic systems and application to remote automated driving*

Lunch Break

13:30 — 14:20 Takashi Furuya (Shimane University)

*Globally injective and bijective neural operators*

14:30 — 15:20 Matteo Santacesaria (University of Genoa)

*Stability for nonlinear inverse problems with low dimensional priors*

15:30: — 16:20 Xi Chen (Fudan University)

*Inverse problems of nonlinear wave equations*

## **January 11 (Thu)**

9:10 — 10:00 Michael Conrad Koch (Kyoto University)

*Bayesian inversion in a trans-dimensional framework for subsurface stratification*

10:05 — 10:55 Zhi Zhou (Hong Kong Polytechnic University)

*Identification of Conductivity in Elliptic equations using Deep Neural Networks*

11:00 — 11:50 Sanghyeon Yu (Korea University)

*The field concentration problem in nano-optics*

Lunch break

13:05 — 13:55 Shiro Hirano (Ritsumeikan University)

*Modeling of slip on a fault during an earthquake: point-source approximation*

14:00 — 14:50 Taizo Maruyama (Tokyo Institute of Technology)

*Scattering analysis of guided wave beam by defects in a plate with finite width*

15:00 — 15:50 Shuli Chen (Hokkaido University)

*Approximate peak time and its application to time-domain fluorescence diffuse optical tomography*

15:55 — 16:45 Samuli Siltanen (University of Helsinki)

*Electrical impedance tomography and virtual X-rays*

**January 12 (Fri)**

9:05 — 9:55 Markus Juvonen (University of Helsinki)

*Dual-grid parameter choice method for total variation regularized image deblurring*

10:00 — 10:50 Hai Zhang (Hong Kong University of Science and Technology)

*A Mathematical Theory of Computational Resolution Limit*

10:55 — 11:45 Hiroshi Fujiwara (Kyoto University)

*On numerical instability of a singular integral equation in x-ray computerized tomography with partial measurement*

11:45 — 11:55 Closing

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