Preface

The open symposium "Analysis of inverse problems through partial differential equations and related topics" was held on January 8th to 10th, 2020, at the Research Institute for Mathematical Sciences (RIMS), Kyoto University, Japan. The papers at the present proceedings are the outgrowth of this symposium. The symposium addressed both theoretical and numerical aspects on inverse problems, where we were encouraged to express and exchange mathematical ideas on the basis of partial differential equations etc.

We would like to express our gratitude to all the speakers and all the participants, which include young scientists and foreign researchers, for their interesting talks and stimulating discussions. We also thank the staff of the Research Institute for their kind help and support offered to us.

Soon after the symposium, the Covid-19 pandemic spread all over the world. We wish everyone to be safe and hope that we could proceed with activities in the inverse-problem community once the situation has been under control.

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October 2020
Kazumi Tanuma
Gunma University, Kiryu, Japan
On behalf of the Organizing Committee

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Program of the symposium

January 8th, 2020 (Wed)

10:00～10:45 Daisuke Kawagoe (Kyoto University)
　　　　　　Spectral analysis on the elastic Neumann-Poincaré operator

11:00～11:45 Hitoshi Yoshikawa (Kyoto University)
　　　　　　A determination of scatterers using topology optimization with time domain
　　　　　　BIEM for scalar wave problems

13:30～14:15 Hiroya Ito (The University of Electro-Communications)
　　　　　　On polynomial solutions of the Lamé and Stokes systems

14:25～15:15 Guanghui Hu (Beijing Computational Science Research Center, China)
　　　　　　Corner scattering and data-driven shape identification problems

15:30～16:15 Yikan Liu (Hokkaido University)
　　　　　　Inverse moving source problems for (time-fractional) diffusion(-wave)
　　　　　　equations

16:25～16:55 Hiroshi Takase (The University of Tokyo)
    Inverse source problem for Klein-Gordon equation in de Sitter space-time

January 9th, 2020 (Thu)

9:20～10:05 Ibtissem Ben Aïcha (Beijing Computational Science Research Center, China)
    Stability estimate in recovering a first order coefficient in a non-self-adjoint
    wave equation from Dirichlet-to-Neumann map

10:20～11:05 Manmohan Vashisth (Beijing Computational Science Research Center,
    China)
    Reconstruction for the coefficients of a quasilinear elliptic partial differential
    equation

11:20～12:10 Xiang Xu（Zhejiang University, China）
    Inversion trace formulas for a Sturm-Liouville operator

12:15～12:30 Xiaohua Jing（Xi'an Jiaotong University, China, The University of Tokyo）
    Uniqueness of the potential for one-dimensional time-fractional diffusion
    problem (short communication)

14:00～14:50 Cheng Hua (Fudan University, China)
    The uniqueness problem of Rayleigh wave in Kelvin viscoelastic half-space
    and possible method to solve the problem

15:10～15:55 Hiromichi Itou (Tokyo University of Science)
    On unilateral contact problems with friction for an elastic body with cracks

16:10～16:55 Shiro Hirano (Ritsumeikan University)
    A nonlinear integro-differential equation of earthquake faulting

18:00～   Banquet

January 10th, 2020 (Fri)

9:30～10:15 Kazuki Niino (Kyoto University)
    A fundamental study of a numerical analysis based on the point source
    method for the Helmholtz equation in 2D

10:30～11:15 Takahiro Saitoh (Gunma University)
    Application of various forward and inverse scattering techniques to
    non-destructive testing

11:30～12:15 Takaaki Nara (The University of Tokyo)

      Identification of coefficients in time-harmonic Maxwell's equations and its
      application　to biomagnetic inverse problems

13:50～14:35 Manabu Machida (Hamamatsu University School of Medicine)

      A numerical method for inverse transport problems

14:50～15:35 Hiroshi Fujiwara (Kyoto University)

      Numerical realizations of X-ray computerized tomography by Cauchy-type
      boundary integration

15:50～16:20 Takashi Furuya (Nagoya University)

      Direct and inverse scattering problems for the local perturbation of an open
      periodic waveguide in the half plane

16:30～16:45 Ruixue Gu (Harbin Institute of Technology, China, The University of Tokyo)
      Fast subspace optimization method for nonlinear inverse problems in
      Banach spaces with uniformly convex penalty terms (short communication)

The home page of the conference:
http://www.xmath.ous.ac.jp/~ohe/RIMS_Jan2020/index_en.html

Organizers:

Professor Hiroshi Fujiwara　(Kyoto University)

Professor Hiromichi Itou　(Tokyo University of Science)

Professor Mishio Kawashita　(Hiroshima University)

Professor Takashi Ohe　(Okayama University of Science)

Professor Takashi Takiguchi　(National Defense Academy of Japan)

Professor Kazumi Tanuma　(Chair: Gunma University)

Professor Michiyuki Watanabe　(Niigata University)

偏微分方程式による逆問題解析とその周辺

Analysis of inverse problems through partial differential equations
and related topics
RIMS 共同研究（公開型）報告集

2020 年 1 月 8 日〜1 月 10 日
研究代表者　田沼　一実 （Kazumi Tanuma)

目次

The articles are put in alphabetical order of the presenters at the symposium.