

Preface

Special Issue for the Fourth Young Scholars Symposium on Inverse Problems

Inverse problems are the application problems where causes are determined for an observed effect. They are primarily concerned with the interpretation and understanding of measured and observed data. Inverse problems lie at the heart of scientific inquiry and technological developments, including radar, sonar and medical imaging, geophysical exploration, nondestructive testing, remote sensing, data assimilation, astronomical imaging, etc. Due to nonlinearity and lack of conventional stability, the study of inverse problems is challenging and requires multidisciplinary efforts.

Inverse Problems International Association (IPIA) is a world premier scientific organisation for inverse problems researchers. The East Asia Section of IPIA was launched in 2016 to popularise and encourage the study of inverse problems in East Asia. The formation of the East Asia Section of IPIA was initiated and enthusiastically supported by the President of IPIA, Prof. Gunther Uhlmann (University of Washington, Seattle and the Institute for Advanced Study, Hong Kong University of Science and Technology). The Founding Council of the East Asia Section of IPIA is formed by Prof. Hongyu Liu (General Secretary, Hong Kong Baptist University), Prof. Jenn-Nan Wang (Vice President, National Taiwan University), Prof. Bo Zhang (Vice President, Academy of Mathematics and System Science, Chinese Academy of Sciences) and Prof. Jun Zou (President, Chinese University of Hong Kong).

Since being established, the East Asia Section has regularly organised the Young Scholars Symposia, which aim to promote young scholars working on inverse problems in the East Asia region. In addition, the symposia provide a platform for young researchers to exchange ideas and explore opportunities for research collaboration. Each symposium usually contains two survey lectures presented by senior researchers, while all the other talks are given by young scholars and the Best Presentation Award is granted to a junior speaker.

The first three Young Scholars Symposia were held at the Hong Kong University of Science and Technology (2016), the Southern University of Science and Technology, Shenzhen (2016) and the National Taiwan University (2017). The fourth symposium in the series took place at the Hong Kong Baptist University from 17 to 18 March, 2018. The symposium Organising Committee included Prof. Mikyoung Lim (Korea Institute for Advanced Study), Prof. Hongyu Liu (Hong Kong Baptist University), Prof. Gen Nakamura (Hokkaido University), Prof. Gunther Uhlmann (Hong Kong University of Science and Technology & University of Washington), Prof. Jenn-Nan Wang (National Taiwan University), Prof. Bo Zhang (Chinese Academy of Sciences) and Prof. Jun Zou (Chinese University of Hong Kong). There were 40 participants from various universities in Mainland China, Hong Kong,

Japan, Korea and Taiwan, with a total of 20 invited talks. The Best Presentation Award went to Dr. Atsuhide Ishida (Tokyo University of Science) for the talk titled "Propagation Property and Inverse Scattering for Fractional Powers of the Negative Laplacian". The special issue contains 11 papers with topics ranging from inverse scattering to imaging processing.

The Organizing Committee would like to thank the Editorial Board of East Asian Journal on Applied Mathematics for devoting a special issue of the journal to the Fourth Young Scholars Symposium on Inverse Problems. We also extend our sincere gratitude to the Managing Editor Dr. Tao Zhou and the Editorial Officer Ms. Yujuan Lei for their professional and patient help and instructions during the preparation of this volume.

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