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**Regularity and Singularity for
Partial Differential Equations
with Conservation Laws**

edited by Mishio Kawashita, Keiichi Kato,
Masashi Misawa and Takayoshi Ogawa

May, 2017

**Research Institute for Mathematical Sciences
Kyoto University**

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*Regularity and Singularity for
Partial Differential Equations
with Conservation Laws*

June 3 ~5, 2015

*edited by Keiichi Kato, Mishio Kawashita,
Masashi Misawa and Takayoshi Ogawa*

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Research Institute for Mathematical Sciences

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Preface

This volume collects research papers, announcements and survey articles contributed to the Proceedings of the RIMS Conference “Regularity and Singularity for Partial Differential Equations with Conservation Laws” held at the Research Institute for Mathematical Sciences, Kyoto University from June 3 (Wednesday) through June 5 (Friday) in 2015. The conference was planned for communications among researchers studying various related fields to differential equations. To make this proceeding more valuable, we decided to approve submissions by not only speakers but also participants if the themes of submitted papers are connected with the aims and topics of the conference.

This volume consists of eleven papers. Nine of them are the contributions of the speakers. The rest two, the second and third papers, are the articles submitted by participants.

All papers in the volume have been reviewed and are in their final forms. As the reviewing policy, the articles of the speakers are basically concerned by their lectures, and the ones given by other participants should be original research papers. The referees have taken much time for giving constructive opinions for the judgement to the publications. We deeply appreciate their efforts. We would also like to express our thanks to all participants, speakers, authors and the RIMS secretaries for their helps in all stages of the conference, preparing, holding and publishing.

This conference is financially supported by RIMS and JSPS Grant-in-Aid for Scientific Research (S)#25220702 and (C)#24540215.

We believe that this volume has a new mathematical information and invites a new development on the field of the conference.

January, 2017

Keiichi Kato

Mishio Kawashita, Chief

Masashi Misawa

Takayoshi Ogawa

Program

Regularity and Singularity for Partial Differential Equations with Conservation Laws

June 3, Wednesday

- 14:00–15:00 Joe Kamimoto (Kyushu University)
「Asymptotic analysis of oscillatory integrals and local zeta functions」
- 15:15–15:45 Tomonari Watanabe (Hiroshima University)
「Strichartz type estimates for the damped wave equation and their applications」
- 16:00–17:00 Yutaka Kamimura (Tokyo University of Marine Science and Technology)
「An inverse blow-up problem」

June 4, Thursday

- 10:00–11:00 Chengbo Wang (Zhejiang University)
「The Strauss conjecture on Kerr black hole backgrounds」
- 11:10–12:10 Yuichi Shiozawa (Okayama University)
「Quantification of global properties of symmetric Markov semigroups」
- 13:30–14:30 Norihisa Ikoma (Kanazawa University)
「Embedded Willmore type tori in Riemannian 3-manifolds with small area」
- 14:50–15:50 Ken-Ichi Aoki (Kanazawa University)
「Weak solution of the renormalization group equation giving physically correct vacuum for theories with dynamical chiral symmetry breaking」
- 16:00–17:00 Eiji Yanagida (Tokyo Institute of Technology)
「Behavior of localized solutions of the Fujita equation in the intermediate range」

June 5, Friday

- 10:00–11:00 Hideshi Yamane (Kwansei Gakuin University)
「Asymptotic analysis based on the inverse scattering method」
- 11:10–12:10 Yoshihito Kohsaka (Kobe University)
「On the criteria for the stability of unduloids」
- 13:30–14:00 Noboru Chikami (Tohoku University)
「On the well-posedness of the full compressible Navier-Stokes system in critical Besov spaces」
- 14:10–14:40 Yuusuke Sugiyama (Tokyo University of Science)
「Large time behavior of solutions to 1D quasilinear wave equations」

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