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RIMS Kôkyûroku Bessatsu B43

Potential Theory and its Related Fields

edited by Kentaro Hirata

September, 2013
Research Institute for Mathematical Sciences
Kyoto University

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Kyoto University, Kyoto, Japan

The papers presented in this volume of RIMS Kôkyûroku Bessatsu are in final form and refereed.

Preface

This volume collects thirteen selected research papers contributed by the speakers of the RIMS workshop "Potential Theory and its Related Fields". All papers have been refereed and are in final form.

The workshop was held at Kyoto University from 3 to 7 September, 2012, and was organized by Hiroaki Aikawa (Hokkaido University), Kentaro Hirata (Hiroshima University), Jun Kigami (Kyoto University) and Masaharu Nishio (Osaka City University). The aim was to overview recent developments in potential theory and its related fields. There were 32 invited and contributed lectures and 70 participants during the meeting.

I would liked to express my sincere gratitude to all the participants, particularly the speakers, and anonymous referees for their cooperation.

Hiroshima, July 2013

Kentaro Hirata

RIMS workshop
Potential Theory and its Related Fields

Dates: September 3 – 7, 2012

Venue: Research Building No. 8 Lecture Room 2,
Faculty of Engineering, Kyoto University

Organizers: Kentaro Hirata (Akita, Chair), Hiroaki Aikawa (Sapporo),
Jun Kigami (Kyoto), Masaharu Nishio (Osaka)

Program

Monday, September 3

10:00 – 10:15 Opening

10:15 – 11:15 **John Lewis**
p harmonic measure in simply connected domains revisited

11:30 – 12:30 **Atsushi Kasue**
Quasi-monomorphisms and p-harmonic functons with finite Dirichlet sum

14:00 – 15:00 **Nageswari Shanmugalingam**
Constructing a prime end boundary for non-simply connected domains in Euclidean spaces and metric measure spaces

15:15 – 15:45 **Vadim Kaimanovich**
Electrical network reduction and the finite Dirichlet problem

15:55 – 16:25 **Hiroaki Masaoka**
On harmonic Hardy-Orlicz spaces

16:40 – 17:10 **Ryozi Sakai**
A characterization of entire functions and approximation

17:20 – 17:50 **Yûsuke Okuyama**
Equilibrium measures for uniformly quasiregular dynamics

Tuesday, September 4

9:15 – 10:15 Masanori Hino
Geodesic distances and intrinsic distances on some fractal sets

10:30 – 11:30 Laurent Saloff-Coste
Heat kernel estimates on inner uniform domains

11:45 – 12:45 Kazumasa Kuwada
Applications of Hopf-Lax formulae to analysis of heat distributions

14:00 – 15:00 Anders Björn
The Perron method for p-harmonic functions: Resolutivity and invariance results

15:15 – 15:45 Tsubasa Itoh
Modulus of continuity of p-Dirichlet solutions in a metric measure space

15:55 – 16:25 Yoshihiro Mizuta
Sobolev's inequality for Riesz potentials in Lorentz spaces of variable exponent

16:40 – 17:10 Tanran Zhang
A potential theoretic approach to the curvature equation

17:20 – 17:50 Sachiko Hamano
Variation for the metrics induced by Schiffer and harmonic spans

Wednesday, September 5

9:15 – 10:15 Eleutherius Symeonidis
A concept of harmonicity for families of planar curves

10:30 – 11:30 Tomas Sjödin
Two-phase quadrature domains and harmonic balls

Thursday, September 6

9:15 – 10:15 John Mackay
The quasisymmetric geometry of boundaries of relatively hyperbolic groups

10:30 – 11:30 Bruce Kleiner
Asymptotic geometry, harmonic functions, and finite generation of isometry groups

11:45 – 12:45 Eero Saksman
Rotation of planar quasiconformal maps

14:00 – 15:00 Mario Bonk
Non-linear potential theory and the Rickman-Picard theorem

15:15 – 15:45 Naotaka Kajino
Weyl's Laplacian eigenvalue asymptotics for the measurable Riemannian structure on the Sierpiński gasket

15:55 – 16:25 Tetsu Shimomura
Hardy averaging operator on generalized Banach function spaces

16:40 – 17:10 Kiyoki Tanaka
A representation for harmonic Bergman function and its application

17:20 – 17:50 Fumi-Yuki Maeda
Mean continuity for potentials of functions in Musielak-Orlicz spaces

Friday, September 7

9:15 – 10:15 Jeremy Tyson
Distortion of dimension by projections and Sobolev mappings

10:30 – 11:30 Yoshihiro Sawano
Morrey spaces and fractional integral operators

11:45 – 12:45 Thomas Ransford
Computation of capacities

14:00 – 15:00 Tom Carroll
Isoperimetric inequalities for a Sobolev Constant

15:15 – 15:45 Minoru Yanagishita
The first boundary value problem of the biharmonic equation for the half-space

15:55 – 16:25 Hiroaki Aikawa
Extended Harnack inequalities with exceptional sets and a boundary Harnack principle

16:35 – 17:05 Kentaro Hirata
Heat kernel estimates and growth estimates of solutions of semilinear heat equations

17:10 – 17:20 Closing

This workshop is supported by Research Institute for Mathematical Sciences, Kyoto University and the following JSPS Grant-in-Aid for Scientific Research:

(A) #20244007 (Principal researcher: Hiroaki Aikawa, Hokkaido University),

(B) #23340025 (Principal researcher: Jun Kigami, Kyoto University),

(C) #23540220 (Principal researcher: Masaharu Nishio, Osaka City University).

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