Mini-workshop on elliptic PDEs

Objective

The aim of this workshop is to bring together experts and scholars in the field of elliptic PDEs to communicate their recent works and stimulate collaborations among attendees.

Schedule:

Time: 10/21, Wednesday
Location: 520 Zhiyuan College, Shanghai Jiao Tong University

List of Speakers:

Sun-Sig Byun	Seoul National University
Chuanqiang Chen	Zhejiang University of Technology
Yongpan Huang	Xi'an Jiao Tong University
Huilian Jia	Xi'an Jiao Tong University
Jinju Xu	Shanghai University
Fengping Yao	Shanghai University

Organizers:

Mijia Lai	Shanghai Jiao Tong University
Lihe Wang	Shanghai Jiao Tong University

Sponsors:

Department of Mathematics, Shanghai Jiao Tong University
Yangfan plan, SMSTC

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Time: 2015. 10. 21 Wednesday   Location: 520 Zhiyuan College

Schedule:

9:30-10:15	Sun-Sig Byun	Seoul National University
10:45-11:30	Fengping Yao	Shanghai University
1:30-2:15	Chuanqiang Chen	Zhejiang University of Technology
2:20-3:05	Jinju Xu	Shanghai University
3:30-4:15	Yongpan Huang	Xi'an Jiao Tong University
4:20-5:05	Huilian Jia	Xi'an Jiao Tong University

Title and Abstract

Calderon-Zygmund theory for elliptic and parabolic problems

Sun-Sig Byun
Seoul National University
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We discuss an optimal Calderon-Zygmund theory for elliptic and parabolic problems in the setting of various function spaces.

On the interior C^2 estimate for prescribed Gauss curvature equation in dimension two

Chuanqiang Chen
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The interior C^2 estimate for admissible solutions of sigma_2(D^2 u)=f(x, u, Du)>0 is a longstanding and important problem. In this talk, we introduce a new auxiliary function, and establish the interior C^2 estimate in dimension two. This is a joint work with Fei Han and Qianzhong Ou.

Lateral boundary regularity of solutions of parabolic equations

Yongpan Huang
Xi'an Jiao Tong University
huangyongpan@gmail.com

In this talk, I will discuss the lateral boundary regularity of solutions of parabolic differential equations in non−divergence form. The results depend on the different geometric assumptions on parabolic boundary. (joint work with Dongsheng Li and Lihe Wang)

Quasilinear elliptic equations on convex domains

Huilian Jian
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In this talk, we deal with the global regularity for the p-Laplacian type elliptic equations on convex domains, where the boundary data lies in some Sobolev spaces. The main techniques in our proof are the maximal function, the Vitali covering lemma and approximation (or the so-called compactness method). Moreover, the Lipschitz regularity for the corresponding homogeneous equation plays an important role in the approximation. Gradient estimates are considered both in the L^p spaces and the Orlicz space.

On gradient estimates of the mean curvature equation with Neumann boundary condition

Jinju Xu
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In this talk, we use the maximum principle to get the gradient estimate for the solutions of the prescribed mean curvature equation with Neumann boundary value problem, which gives a positive answer for the question raised by Lieberman. As a consequence, we obtain the corresponding existence theorem for a class of mean curvature equations. This is a joint work with Xinan Ma.

Hölder regularity of the gradients for the elliptic p(x) and parabolic p(x,t) Laplacian equations

Fengping Yao
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We mainly study the local Holder regularity of the gradients of weak solutions for the elliptic p(x) and parabolic p(x,t) Laplacian equations under some proper assumptions.