

Symposium on Nonlinear Partial Differential Equations and Applications

Date: June 10, 2016

Venue: 100-L Conference Room, Math Building, SJTU

Invited speakers:

Yinbin Deng, Central China Normal University

Hailiang Li, Capital Normal University

Zuhan Liu, Yangzhou University

Xiaoping Wang, The Hong Kong University of Science and Technology

Sponsors:

School of Mathematical Sciences, SJTU

Zhiyuan Center of Mathematical Sciences, SJTU

MOE-LSC and SHL-MAC, SJTU

Institute of Mathematical Sciences, SJTU

Institute of Natural Sciences, SJTU

Shanghai Jiao Tong University

Natural Science Foundation of China

Shanghai Committee of Science and Technology

Program

13:25-13:30		Opening Remarks
13:30-14:20	Deng, Yinbin	Solitary wave solutions to a quasilinear Schrödinger equation
14:20-15:10	Liu, Zuhan	TBA
15:10-15:30	Coffee/Tea Break	
15:30-16:20	Wang, Xiao-Ping	A dynamic theory for the speed dependent contact angle hysteresis
16:20-17:10	Li, Hailiang	Spectrum structure and behaviors of kinetic equations
17:10-17:30	Free Discussion	

Title and Abstract

- Deng, Yinbin, Central China Normal University

Title: Solitary wave solutions to a quasilinear Schrödinger equation

Abstract:

This talk is concerned with a quasilinear Schrödinger equation in \mathbb{R}^N involving critical exponents, which models the self-channeling of a high-power ultra short laser in matter. We obtain an existence result on its solitary wave solutions by using a change of variables, variational argument and a Pohozaev type identity.

- Liu, Zuhan, Yangzhou University

Title: TBA

Abstract:

TBA

- Wang, Xiao-Ping, The Hong Kong University of Science and Technology

Title: A dynamic theory for the speed dependent contact angle hysteresis

Abstract:

We study the interface dynamics and contact angle hysteresis in a two dimensional, chemically patterned channel described by the Cahn-Hilliard equation with a relaxation boundary condition. A system for the dynamics of the contact angle and contact point is derived in the sharp interface limit. From the behaviour of the solution of the contact angle dynamic equation, we observe stick-slip motion and contact angle hysteresis. Our analysis reveals the mechanism for the asymmetric speed dependent contact angle hysteresis observed experimentally. We also develop an efficient volume-preserving threshold-dynamics method for the wetting dynamics. Numerical examples are presented to verify our analysis.

- Li, Hai-Liang, Capital Normal University

Title: Spectrum structure and behaviors of kinetic equations

Abstract:

We present the recent results on the spectrum structures of the Vlasov-Poisson(Maxwell)-Boltzmann equations and justify the influences of the electrostatic potential force, Lorentz force, and/or the mutual interaction between charged particles of different types. It is joint work with Ying Wang, Mingying Zhong and Tong Yang.