

NYU
上海SHANGHAI
纽约大学NYU-ECNU
Institute of Mathematical Sciences
at NYU Shanghai

ANALYSIS/PDE SEMINAR SERIES

- TOPIC:** Symmetry Results for Semilinear Local and Nonlocal Elliptic PDEs
- SPEAKER:** Mostafa Fazly, Max Wyman Assistant Professor of Mathematics, University of Alberta
- TIME:** 1:45pm - 2:45pm, 6 November 2014
- VENUE:** Room 357, Geography Building, 3663 Zhongshan Road North, Shanghai
(中山北路校区, 地理楼 357 室)

ABSTRACT OF THE TALK

We start this talk with a celebrated conjecture of De Giorgi on bounded monotone solutions of the Allen-Cahn equation. De Giorgi's conjecture (1978) brings together three groups of mathematicians: one specializing in nonlinear partial differential equations, another in differential geometry, more specially on minimal surfaces and constant mean curvature surfaces, and in mathematical physics on phase transitions. The main focus of this talk is on ideas and methods developed regarding this conjecture from PDE perspectives. We then state counterparts of this conjecture to various local and nonlocal elliptic PDEs and provide the known results. The main challenges in this topic are mostly proving monotonicity formula, linear Liouville theorems and pointwise/Hamiltonian estimates.

BIOGRAPHY

Mostafa Fazly is a Max Wyman Assistant Professor of Mathematics at the University of Alberta. He finished his PhD at the University of British Columbia in the field of PDEs in Jan 2013. He has been collaborating with Nassif Ghoussoub (PhD supervisor), Juncheng Wei and Yannick Sire and these talks are partially related to these collaborations.