

Analysis Autumn School 2022

Xavier Cabré (ICREA & Universitat Politècnica de Catalunya. Barcelona)

Title: "On the regularity of stable solutions to reaction-diffusion elliptic equations"

Abstract: The regularity of stable solutions to semilinear elliptic PDEs has been

studied since the 1970's. It was initiated by a work of Crandall and Rabinowitz, motivated by the Gelfand problem in combustion theory. The theory experienced a revival in the mid-nineties after new progress made by Brezis and collaborators. I will present these developments, as well as a recent work, in collaboration with Figalli, Ros-Oton, and Serra, which finally establishes the regularity of stable solutions up to the optimal dimension 9. I will also describe a more recent paper of mine which provides full quantitative proofs of the regularity results.



Alessio Figalli (ETH Zurich, Zurich)

Title: "The obstacle problem"

Abstract: The aim of this course is to discuss the regularity theory for the obstacle problem, starting from the most classical results and concluding with some of the most recent developments on the regularity of the free boundary.



Schedule:

October 17, 2022, Alessio Figalli, 10:00-12:00 (Zurich, Barcelona time, DST) 16:00-18:00 (Beijing time); Xavier Cabre, 14:00-16:00 (Zurich, Barcelona time, DST), 20:00-22:00 (Beijing time).

Zoom conference number: 898 625 67808 Code: 123456

October 18, 2022, Xavier Cabre, 10:00-12:00 (Zurich, Barcelona time, DST) 16:00-18:00 (Beijing time); Alessio Figalli, 14:00-16:00 (Zurich, Barcelona time, DST), 20:00-22:00 (Beijing time).

Zoom conference number: 865 735 82792 Code: 123456

October 20, 2022, Xavier Cabre, 10:00-12:00 (Zurich, Barcelona time, DST) 16:00-18:00 (Beijing time); Alessio Figalli, 14:00-16:00 (Zurich, Barcelona time, DST), 20:00-22:00 (Beijing time).

Zoom conference number: 883 220 41708 Code: 123456

October 21, 2022, Alessio Figalli, 10:00-12:00 (Zurich, Barcelona time, DST) 16:00-18:00 (Beijing time); Xavier Cabre, 14:00-16:00 (Zurich, Barcelona time, DST), 20:00-22:00 (Beijing time).

Zoom conference number: 856 232 31273 Code: 123456

More information can be found at <https://sites.google.com/site/ddfx023zy/home/analysis-autumn-school>

Organizers:

Yi Zhang (Chinese Academy of Science)

Yuan Zhou (Beijing Normal University)

