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Seminari Informal de Matemàtiques de Barcelona

Speaker: Pablo Hidalgo Palencia.

University: Universitat de Barcelona.

Date: Wednesday, May 20th, 2026.

Schedule: 12:20 talk.

Place: UB (B1) and Zoom.

Language: English.

Title: The rough side of PDEs.

Abstract: Partial Differential Equations (PDEs) arise naturally when modeling diffusion processes and many other physical phenomena. However, in many situations, the underlying medium or geometry may be highly irregular. A classical example is the melting of ice in water, where the ice–water interface can develop complicated shapes over time. This leads to a so-called Free Boundary Problem (a very active area of Analysis), in which the interface is not prescribed a priori, but evolves over time together with the equation governing the heat flow. Studying PDEs in such rough settings often requires modern techniques from several areas of Analysis, including Harmonic Analysis, Geometric Measure Theory and the Calculus of Variations. In this talk, I will give an informal overview of some of these ideas and recent developments in the area, while assuming essentially no prior background in PDEs.

About us: *SIMBa* is a mathematics seminar organized by graduate students in the Barcelona area. It is aimed towards graduate and last–year undergraduate students. Our goals are disseminating knowledge from different branches of mathematics for those interested and promoting networking between the attendants.

This seminar is backed by the Faculty of Mathematics and Computer Science at Universitat de Barcelona, Faculty of Mathematics and Statistics at Universitat Politècnica de Catalunya, the Department of Mathematics at Universitat Autònoma de Barcelona, CRM, IMUB and BGSMath.

For more information, visit seminari-simba.github.io/en. You may contact us by sending an email to seminari.simba@gmail.com.