Date: December 5, 2023
Time: 15:00 CET
Room: S05 (FME - UPC)

Semiconvexity estimates for integro-differential equations

Marvin Weidner

Universitat de Barcelona

The Bernstein technique is an elementary but powerful tool in the regularity theory for elliptic and parabolic equations. It is based on the insight that, if derivatives of a solution are also subsolutions to an equation, then the maximum principle can be used in order to obtain regularity estimates for these solutions. In the first part of this talk, we explain how the Bernstein technique can be extended to a large class of integro-differential equations driven by nonlocal operators that are comparable to the fractional Laplacian. In the second part, we discuss several applications of this technique to the regularity theory for the nonlocal obstacle problem in a bounded domain, and to nonlocal Bellman-type equations. This talk is based on a joint work with Xavier Ros-Oton and Clara Torres-Latorre.