The Bernstein technique for integrodifferential equations

Serena Dipierro
University of Western Australia (Australia)
serena.dipierro@uwa.edu.au

Abstract

We present a version of the classical Bernstein technique for integro-differential operators. We provide first and one-sided second derivative estimates for solutions to fractional equations, including some convex fully nonlinear equations of order smaller than two, for which we prove uniform estimates as their order approaches two. Our method is robust enough to be applied to some Pucci-type extremal equations and to obstacle problems for fractional operators, although several of the results are new even in the linear case. The result discussed come from a joint work with Xavier Cabré and Enrico Valdinoci.