

**P. Pucci:** Existence of Entire Solutions for Elliptic Problems Involving the Fractional Laplacian

We study the existence and multiplicity of entire solutions for elliptic equations, driven by a non-local integro-differential operator, which main prototype is the fractional Laplacian. The model under consideration, denoted by  $P_\lambda$ , depends on a real parameter  $\lambda$  and involves two superlinear nonlinearities, one of which could be critical or even supercritical. The main theorem of the paper establishes the existence of three critical values of  $\lambda$  which divide the real line in different intervals, where  $P_\lambda$  admits no solutions, at least one nontrivial non-negative entire solution and two nontrivial non-negative entire solutions (in *Journal of Differential Equations*, **255** (2013), 2340-2362, joint work with G. Autuori).