

DIM-CMM PDE Seminar

Speaker: Reshmi Biswas (Universidad Técnica Federico Santa María)

Title: Nonexistence of positive supersolutions for semilinear fractional elliptic equations in exterior domains.

Abstract:

In this talk, our goal is to investigate the nonexistence of positive solutions to nonlinear fractional elliptic inequalities in exterior domains of \mathbb{R}^n , $n \geq 1$. Our results extend the classical Liouville-type theorems of Gidas–Spruck [3] for semilinear elliptic equations, as well as the framework of Armstrong–Sirakov [1] for supersolutions of elliptic equations, to the nonlocal setting. They are also closely related to the fundamental solution approach of Felmer–Quaas [2] for nonlinear integral operators, although our arguments require substantial modifications to address the interplay between the fractional operator, the geometry of exterior domains, and the general nonlinearities under consideration. The nonexistence results we obtain hold under much weaker growth conditions on the nonlinear term f , and they are sharp. Moreover, the conclusions remain novel not only in exterior domains but also in the whole space.

For those unable to attend in person, the talk will also be available

via Zoom at the following link:

<https://uchile.zoom.us/j/93613339766?pwd=vB3J7Vhb0EX3kQDHfH741CKN19YKQz.1>

Wednesday 1st, at 16:15 hs in the Sala de Seminarios (Beauchef 851, DIM, fifth floor).

For further information, see our webpage: <https://eventos.cmm.uchile.cl/pdeseminar/>