

## Free Boundary Problems in PDEs and Related Issues

**José Francisco Rodrigues** (Universidade de Lisboa - Portugal)

**Título:** Stability of Coincidence Sets for the Nonlocal  $p$ -Obstacle Problem.

**Resumo:** The solutions to the nonlocal  $p$ -obstacle problems, when the fractional parameter  $s$  tends to 1, converge to the solution of the classical obstacle problem for the local  $p$ -Laplacian. Under natural and suitable conditions on the coincidence set of the solution with the obstacle in the local  $p$ -obstacle problem, we show that the corresponding coincidence sets of the nonlocal  $p$ -obstacle problems converge to that coincidence set of the limit local problem. This stability can be shown both in terms of the convergence of the characteristic functions of the coincidence sets and also in their Hausdorff distance, under different non-degeneracy assumptions only of the limit coincidence set. These are further remarks on nonlinear nonlocal obstacle problems in a going-on joint work with Catharine Lo.