Semilinear problems for the fractional laplacian with a singular nonlinearity

We study the existence, regularity and multiplicity of solutions of nonlocal problems which present in the right hand side of the equation singular nonlinearities. The operator which appears in the left hand side of the equation is the fractional Laplace operator $(\quad)^s$, where $0 < s < 1$.

In order to study this kind of problems, we will adapt in a suitable way the techniques used in the study of the corresponding elliptic problems in the local background to the nonlocal framework.