

Continuous solutions and approximating scheme for fractional Dirichlet problems on Lipschitz domains

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In this paper, we study the fractional Dirichlet problem with the homogeneous exterior data posed on a bounded domain with Lipschitz continuous boundary. Under an extra assumption on the domain, slightly weaker than the exterior ball condition, we are able to prove existence and uniqueness of solutions which are Hölder continuous on the boundary. In proving this result, we use appropriate barrier functions obtained by an approximation procedure based on a suitable family of zero-th order problems. This procedure, in turn, allows us to obtain an approximation scheme for the Dirichlet problem through an equicontinuous family of solutions of the approximating zero-th order problems on. Both results are extended to an ample class of fully non-linear operators.