NONLOCAL DOUBLY NONLINEAR DIFFUSION PROBLEMS WITH NONLINEAR BOUNDARY CONDITIONS

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ABSTRACT. The study of partial differential equations in nonlocal frameworks and graphs has attracted a great deal of interest in recent years. In this talk we give results on existence and uniqueness of mild and strong solutions of nonlocal nonlinear diffusion problems of p-Laplacian type with nonlinear boundary conditions posed in random walk spaces. These spaces are of great generality and include, among others, weighted discrete graphs and $\mathbb{R}^N$ with a random walk induced by a nonsingular kernel. We also study the case of nonlinear dynamical boundary conditions. The generality of the nonlinearities considered allow us to cover the nonlocal counterparts of a large scope of local diffusion problems: Stefan problems, Hele-Shaw problems, diffusion in porous media problems, obstacle problems, and more. The basis for the study will be nonlinear semigroup theory.

REFERENCES

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