Analysis of fractional Dirichlet problems using the logarithmic Laplacian
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Abstract: Fractional derivatives are commonly used to model a variety of phenomena, but... what does it mean to have a logarithmic derivative? And what would it be used for?

In this talk we focus on the logarithmic Laplacian, a pseudodifferential operator that appears as a first order expansion of the fractional Laplacian $(-\Delta)^s$ as the exponent s goes to zero. This operator can also be represented as an integrodifferential operator with a zero-order kernel.

We will discuss how the logarithmic Laplacian can be used to study the behavior of linear and nonlinear fractional problems in the small order limit. This analysis will also reveal a deep and interesting mathematical structure behind the set of solutions of Dirichlet logarithmic problems.