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On interpolation of function spaces on fractal domains

In a recent study on acoustic scattering by irregular domains, the need arose for interpolation results of certain Sobolev spaces on these domains, specifically on the interiors of attractors of dimension n of Iterated Function Systems (IFS) of contracting similarities satisfying the Open Set Condition (OSC) in \mathbb{R}^n . In general, we cannot expect these domains to meet all the hypotheses required by existing interpolation theorems, necessitating the development of new results specific to this setting. This talk will outline how this challenge was addressed and discuss potential extensions to the broader context of Besov and Triebel-Lizorkin spaces.

This is joint work with David Hewett (UCL) and Simon Chandler-Wilde (University of Reading).