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Trace theorems for self-similar trees

We consider a class of self-similar metric graphs (infinite radial trees) equipped with second-order Laplace-type differential operators. We discuss various definitions of boundary traces for the associated Sobolev spaces. In particular, we manage to identify the boundary of the metric graphs with explicit geometric objects (Euclidian submanifolds) and to estimate the Sobolev smoothness of the boundary traces in a very precise way. The approach is based on special decompositions of function spaces on radial trees, on a fine characterization of Besov and Sobolev spaces, and on some multiscale decompositions of Euclidian domains proposed in the theory of wavelets. Joint work with Valentina Franceschi (Padova) and Konstantin Pankrashkin (Oldenburg).