Computing eigenvalues of the Laplacian on rough domains

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In this talk, I shall present a recent paper with Frank Rösler in which we consider the computability and non-computability of eigenvalues of the Dirichlet Laplacian on bounded domains with rough, possibly fractal, boundaries. This problem may be formulated rigorously within the recently introduced framework of Solvability Complexity Indices. In our pursuit to address this question, we are led to the development of new spectral convergence results for the Dirichlet Laplacian on rough domains, as well as a novel Poincaré-type inequality, which shall be the main focus of my talk.