P-Dirichlet spaces and the resolution of the resistance and energy image density conjectures

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I will describe the resolution of two conjectures related to Dirichlet forms. In both cases a conceptually simple solution arises by stepping away from the p=2 regime. This leads to a new definition of a p-Dirichlet space, which unifies three quite different areas: Dirichlet form theory, Analysis on fractals and Analysis on metric spaces. The talk includes joint work with Mathav Murugan.