1113-46-291   **Luke G Rogers*** (`luke.rogers@uconn.edu`). *Magnetic operators on resistance spaces.*

A quantum particle confined to a fractal substrate and subject to the influence of a magnetic field should be modeled by a magnetic operator based on a fractal Laplacian. In joint work with Michael Hinz, we consider sufficient conditions for the existence of a self-adjoint magnetic operator in the case that the substrate is a resistance space in the sense of Kigami, and identify some properties regarding local exactness and gauge invariance. Within this framework we then consider the special case of the Sierpinski Gasket, and identify some properties of the spectrum of the magnetic operator when the magnetic field is locally exact. The latter results are from a collaboration with Jessica Hyde, Jesse Muller, Daniel Kelleher and Luis Seda. (Received August 25, 2015)

1