1126-83-40      **Jordan M Keller\*** (`keller@math.columbia.edu`), 2990 Broadway, Room 408, MC 4406, New York, NY 10027. *Linear Stability of Schwarzschild Spacetime Subject to Axial Perturbations.*

The Schwarzschild solution of the vacuum Einstein equation in general relativity is the unique static solution that represents an isolated gravitating system of a single black hole. Both experimental and theoretical studies of such a system are modeled on the Schwarzschild solution and its perturbations. The stability of the Schwarzschild solution is thus of great practical and theoretical significance.

This talk will discuss joint work with Pei-Ken Hung on the linear stability of Schwarzschild spacetime subject to certain axisymmetric perturbations. In particular, we prove that associated solutions to the linearized vacuum Einstein equations centered at a Schwarzschild metric, with suitably regular initial data, remain uniformly bounded and decay to a linearized Kerr metric. Our method employs a complex line bundle interpretation applied to connection-level objects, allowing for direct analysis of these connection-level objects by means of the linearized Einstein equations. (Received December 14, 2016)