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Phillip D Whitman* (pwhitman@math.princeton.edu), 11 Lawrence Dr #105, Princeton, NJ 08540. *Uniqueness of solutions to linear wave equations on the Schwarzschild spacetime.* Preliminary report.

Recent work on black hole uniqueness by Ionescu, Klainerman, Alexakis and others has led to increased interest in the problem of prescribing data on the event horizons of black holes for solutions to linear wave equations. Ionescu and Klainerman show that if we require that the solution be stationary on any Kerr spacetime, then we have uniqueness throughout the entire domain of outer communication. Additionally, if we require that the solutions be analytic, we will again have uniqueness throughout the domain of outer communication. However, we expect nonuniqueness of smooth, nonstationary (and not analytic) solutions. We will discuss recent work concerning constructing counterexamples to unique continuation in this framework on the Schwarzschild spacetime. (Received September 08, 2009)