

**SPEAKER:**

Jacob Shapiro, University of Dayton

**TITLE:**

Local energy decay for Lipschitz wavespeeds

**ABSTRACT:**

We establish logarithmic local energy decay in dimensions two and three for solutions to the wave equation with a wavespeed that is a short range, Lipschitz perturbation of unity. The key is to establish Hölder continuity of the resolvent for real frequencies, modulo a logarithmic remainder in dimension two as frequency goes to zero. This is carried out by proving two types of resolvent estimates. We obtain a resolvent estimate at low frequency using a Neumann series and Bessel function asymptotics. The second resolvent estimate, valid uniformly in  $\mathbb{R} \setminus [-\lambda_0, \lambda_0]$  for any fixed  $\lambda_0 > 0$ , is proved by way of a Carleman estimate. This work is joint with Gayana Jayasinghe, Katrina Morgan, and Mengxuan Yang.