SPEAKER:

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TITLE:

Wave decay for star-shaped waveguides

ABSTRACT:

Let $X \subset \mathbb{R}^d$ be an unbounded open set. We wish to understand how decay of solutions to the wave equation on X is related to the geometry of X.

When $\mathbb{R}^d \setminus X$ is bounded, this is the celebrated obstacle scattering problem. Then a particularly favorable geometric assumption, going back to the original work of Morawetz, is that the obstacle is star shaped. We adapt this assumption to the study of waveguides, which are domains bounded in some directions and unbounded in others, such as tubes or wires. We prove sharp wave decay rates for waveguides which are star shaped in an appropriate sense, for example a strip in $\mathbb{R}^2$ with a closed disk removed.