

# TEMPLE UNIVERSITY MATHEMATICS COLLOQUIUM

**Peter Hislop**

University of Kentucky

will speak on

## **Resonances: From Quantum Mechanics to Geometry**

ABSTRACT: The set of resonances of a self-adjoint operator  $H$  on a Hilbert space  $\mathcal{H}$  are most easily described as poles of the meromorphic continuation of the localized resolvent of  $H$ . In quantum mechanics, resonances of a physical system are associated with states that are well-localized for finite times but eventually decay to spatial infinity. In geometry, the resonances of a noncompact manifold are associated with quasi-modes localized to neighborhoods of closed geodesics that eventually decay to infinity. The mathematical theory of resonances is relatively new and contains many beautiful results and open problems. The theory combines techniques from functional analysis, complex analysis and differential geometry. This expository talk will highlight some aspects of the theory beginning with the basics.

MONDAY, 8 NOVEMBER 2010

LECTURE AT 4:00 PM

COFFEE, TEA, AND REFRESHMENTS FROM 3:30-5 PM

ROOM 617, WACHMAN BUILDING

DEPARTMENT OF MATHEMATICS