SPEAKER:

Jacob Shapiro, University of Dayton

TITLE:

Semiclassical resolvent bounds for compactly supported radial potentials

ABSTRACT:

We employ separation of variables to prove weighted resolvent estimates for the semiclassical Schrdinger operator $-h^2\Delta + V(|x|) - E$ in dimension $n \geq 2$, where, $h, E > 0$ and $V : [0, \infty) \to \mathbb{R}$ is L^∞ and compactly supported. We show that the weighted resolvent estimate grows no faster than $\exp(Ch^{-1})$, and prove an exterior weighted estimate which grows $\sim h^{-1}$. The analysis at small angular momenta proceeds by a Carleman estimate and the WKB approximation, while for large angular momenta we use Bessel function asymptotics. This is joint work with Kiril Datchev (Purdue University) and Jeffrey Galkowski (University College London).