

1047-41-38

Kwang C. Shin* (kshin@westga.edu), Department of Mathematics, University of West Georgia, Carrollton, GA 30118. *Asymptotic distribution of eigenvalues of non-self-adjoint Schrödinger operators with polynomial potentials*. Preliminary report.

For integers $m \geq 3$, the Schrödinger eigenvalue problem

$$-y'' + (x^m + P(x))y = \lambda y, \quad x \geq 0,$$

under the boundary conditions at $\alpha y(0) + \beta y'(0) = 0$ and $y(+\infty) = 0$ will be studied, where P is a polynomial of degree $\leq m - 1$. It is known that the eigenvalues are the zeros of an entire function of order $\frac{1}{2} + \frac{1}{m}$.

In this talk, we present results on direct and inverse spectral problems. In particular, we will talk about asymptotics of the eigenvalues and some effect of the boundary condition at $x = 0$ on the asymptotics. Also, we will mention some inverse spectral results, recovering the polynomial potential from the first few terms of the asymptotics of the eigenvalues. (Received December 09, 2008)