

Prof. M Krishna.

The Institute of Mathematical Sciences, Chennai.

Title: Szegö type theorem on the lattice.

Abstract: In this talk we present a Szegö type theorem that gives limits of compressions of pseudo difference operators of order zero in the eigen bases of a class of difference operators. Specifically if H is a positive self-adjoint operator of the form $\Delta + V$, with V an operator of multiplication by a positive sequence $V(n)$ on $\ell^2(\mathbb{Z}^d)$ and $\pi_\lambda = E_H((0, \lambda))$ and B a bounded self-adjoint pseudo difference operator of order zero with symbol $b(x, n)$, $(x, n) \in \mathbb{T}^d \times \mathbb{Z}^d$, then

$$\lim_{\lambda \rightarrow \infty} \frac{\text{Tr}(f(\pi_\lambda B \pi_\lambda))}{\text{Tr}(\pi_\lambda)} = \lim_{\lambda \rightarrow \infty} \frac{\sum_{V(n) \leq \lambda} \frac{1}{(2\pi)^d} \int_{\mathbb{T}^d} b(x, n) dx}{\sum_{V(n) \leq \lambda} 1},$$

for any continuous function f on $\cup_{0 \leq t \leq 1} t\sigma(B)$.