1027-46-159 **Torsten Ehrhardt***, Mathematics Department, University of California, Santa Cruz, CA 95064, and **Bernd Silbermann** and **Steffen Roch**. *Szegö-Widom limit theorems for band-dominated operators with almost periodic coefficients.*

The classical strong Szegö-Widom limit theorem describes the asymptotic behavior of the determinants of certain (block) Toeplitz matrices (i.e., matrices with constant entries along each diagonal) as their size goes to infinity.

We will generalize this theorem to matrices where the entries on each diagonal are not necessarily constant, but are given by almost periodic sequences. In the case of periodic sequences the block Toeplitz matrices are recovered. Prominent examples of band matrices with almost periodic coefficients are, for example, those arising from the almost Mathieu operator.

A Szegö-type asymptotics can be proved in the cases where a certain condition is satisfied, which involves the Fourier spectrum of the sequences that make up the diagonals. This condition seems to hold a.e., yet counter-examples to a Szegö-type asymptotics can be constructed as well.

The proof of the result is based on a Banach algebra approach to the Szegö-Widom limit theorem. Notably, a couple of open problems remain. (Received February 26, 2007)