Distributional versions of Szegö limit type theorems

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One of Szegös classical theorems claims that for realvalued $a \in L^\infty(\Pi)$ and every compactly supported continuous function f defined on $\mathbb{R}$ on has

$$\frac{1}{n}\sum_{j=1}^{n} f(\lambda_j^{(n)}) \to \frac{1}{2\pi}\int\limits_0^{2\pi} f(a(e^{i\theta}))d\theta\,,$$

where $x_j^{(n)}$ are the eigenvalues of the matrices

$$T_n(a) := (a_{e-k})_{e,k=0}^{n-1}$$

and a_k the Fourier coefficients of a.

It will be given a general look at theorems of such type where the Toeplitz matrices $T_n(a)$ are replaced by more general ones. The used methods are based on C^*-algebra techniques.

Two lectures (each 1 – 1,5 hour)