1023-46-540 **Cyrus P. Aryana*** (aryana@svsu.edu), Department of Mathematical Sciences, Saginaw Valley State University, 7400 Bay Road, University Center, MI. *On the existence of eigenvalues of Toeplitz operators associated with representing measures on multiply connected planar regions.*

Eigenvalues of self-adjoint Toeplitz operators on multiply connected planar regions D having $g \geq 1$ holes acting on the Hardy spaces $H^2(dm)$ with respect to non-negative representing measures m based at a fixed point a in D is studied. The presence of eigenvalues for the case $g = 1$ is detected through an analysis of the zeros of translations of theta functions restricted to $\mathbb{R}$ in $\mathbb{C}$.

The analysis uses an explicit resolvent formula for self-adjoint Toeplitz operators on a Hardy space associated with any non-negative representing measure on a g-holed planar region via reproducing kernels in terms of theta functions on $\mathbb{C}^g$, an earlier work of Gholamreza Akbari Estahbanati (Cyrus P. Aryana) [Proc. of The Amer. Math. Soc., vol. 124, **9** (1996), 2737–2744]. (Received September 18, 2006)