1035-46-1407 **Cyrus Parsi Aryana*** (aryana@svsu.edu), Department of Mathematical Sciences, 7400 Bay Road, Saginaw Valley State University, University Center, MI 48710. *On the existence of eigenvalues of self-adjoint Toeplitz operators associated with representing measures on multiply connected planar regions II.*

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

The analysis uses an explicit resolvent formula for self-adjoint Toeplitz operators on Hardy spaces 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 (now known as Cyrus Parsi Aryana) [Proc. of The Amer. Math. Soc., vol. 124, **9** (1996), 2737-2744]. (Received September 19, 2007)