1077-55-1936 **Matthew Donovan Griisser*** (mgriisser3@gatech.edu), 3880 Overlake Drive, Cumming, GA 30041, and **Allison Miller** and **Jacqueline Brimley**. *The Wecken Property for Random Maps on Surfaces with Boundary.*

If $f$ is a self-map on a compact ANR, the *minimal number of fixed points* of $f$, denoted $MF(f)$, is the minimum number of fixed points for any $g$ homotopic to $f$. The *Nielsen number*, denoted $N(f)$, is a homotopy and homotopy-type invariant defined such that $N(f) \leq MF(f)$ for all $f$. Wecken established in the 1920s that if $f$ is a self-map on a manifold (with or without boundary) of dimension not 2 then $N(f) = MF(f)$. In general, if $f$ is any function such that $N(f) = MF(f)$, we say that $f$ is *Wecken*. In the 1980s Jiang established that there are non-Wecken maps on surfaces with boundary.

We consider the action of a given $f : X \to X$ in terms of its induced homorphism $f_{\#} = \phi : \pi_1(X) \to \pi_1(X)$. In the case of surfaces with boundary, which are of the same homotopy type as bouquets of circles, we have that $\pi_1(X)$ is the free group on $n$ generators. Wagner provided a way to calculate $N(f)$ in terms of $\phi$'s action on these generators. Using Wagner's algorithm, we obtained a lower bound, expressed in the language of asymptotic density, on the proportion of maps on surfaces with boundary that are Wecken. (Received September 21, 2011)