1093-51-226 **Kathryn Mann*** (mann@math.uchicago.edu). *Components of representation spaces.*

Let G be a group of homeomorphisms of the circle, and Γ the fundamental group of a closed surface. The representation space Hom(Γ, G) is a basic example in geometry and topology: it parametrizes flat circle bundles over the surface with structure group G, or G-actions of the surface group on the circle. Goldman proved that connected components of Hom(Γ, PSL(2,R)) are completely determined by the Euler number, a classical invariant. By contrast, the space Hom(Γ, Homeo+(S^1)) is relatively unexplored – for instance, it is an open question whether this space has finitely or infinitely many components.

We report on recent work and new tools to distinguish connected components of Hom(Γ, Homeo+(S^1)). In particular, we give a new lower bound on the number of components, show that there are multiple components on which the Euler number takes the same value – in contrast to the PSL(2,R) case – and we identify certain representations which exhibit surprising rigidity. A key technique is the study of rigidity phenomena in rotation numbers, using recent ideas of Calegari-Walker. (Received August 15, 2013)