1138-20-68   **Ilya Kapovich*** (`kapovich@math.uiuc.edu`), 1409 West Green Street, UIUC Department of Mathematics, Urbana, IL 61801, and **Michael Hull** and **Catherine Pfaff**. *Counting conjugacy classes of fully irreducibles in $Out(F_r)$.*

Inspired by results of Eskin and Mirzakhani counting closed geodesics of length $\leq L$ in the moduli space of a closed surface Σ_g of genus $g \geq 2$, we consider a similar question in the $Out(F_r)$ setting. Let $h = 6g - 6$. The Eskin-Mirzakhani result, giving the asymptotics of $\frac{e^{hL}}{hL}$, can be equivalently stated in terms of counting the number of $MCG(\Sigma_g)$-conjugacy classes of pseudo-Anosovs $\phi \in MCG(\Sigma_g)$ with dilatation $\lambda(\phi)$ satisfying $\log \lambda(\phi) \leq L$. For $L \geq 0$ let $\mathfrak{N}_r(L)$ denote the number of $Out(F_r)$-conjugacy classes of fully irreducibles $\phi \in Out(F_r)$ with dilatation $\lambda(\phi)$ satisfying $\log \lambda(\phi) \leq L$. In a joint result with Catherine Pfaff, we prove for $r \geq 3$ that as $L \to \infty$, the number $\mathfrak{N}_r(L)$ has double exponential (in L) lower and upper bounds. We also obtain a companion result, joint with Michael Hull, and show that of distinct $Out(F_r)$-conjugacy classes of fully irreducibles ϕ from an L-ball in the Cayley graph of $Out(F_r)$ with $\log \lambda(\phi)$ on the order of L grows exponentially in L. (Received January 29, 2018)