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Mia Smith* (mcs3@williams.edu) and **Gregory Kehne**. *Volume and Determinant Densities of Hyperbolic Links*.

Hyperbolic volume has proven to be a powerful invariant for distinguishing links. Somewhat surprisingly, there is a related combinatorial invariant, the determinant of a link, which appears to be deeply connected to volume. In particular, it is conjectured that for any hyperbolic link L , $\text{vol}(L) < 2\pi \log \det(L)$. To better understand this conjecture, we study the sets of volume and determinant densities of hyperbolic links. We construct sequences of knots that approach any $x \in [0, v_{\text{oct}}]$ in both volume and determinant density. Additionally, we use geometric and combinatorial techniques to prove that in the case of rational links, these sets are dense subsets of two subintervals of $[0, v_{\text{oct}}]$. These are results from our SMALL 2015 knot theory group. (Received September 22, 2015)