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**Caglar Uyanik\*** (cuyanik2@illinois.edu), Department of Mathematics, 1409 W. Green Street, Urbana, IL 61801, and **Grace Work**. *The distribution of gaps for saddle connections on the octagon.*

I will discuss the notion of *gap distribution* for slopes of saddle connections associated to flat surfaces. In particular, we explicitly compute the gap distribution associated to the flat surface obtained by gluing opposite sides of a regular octagon. Moreover, we give a recipe to compute the gap distribution for every Veech surface by constructing a Poincare section to the horocycle flow on the moduli space. (Received January 25, 2015)