1176-37-231 **Jane Wang*** (wangjan@iu.edu), **Luis Kumanduri** and **Anthony Sanchez**. *Slope gap distributions of Veech translation surfaces.*

Translation surfaces are surfaces that are locally Euclidean except at finitely many points called cone points. A saddle connection is then a straight trajectory that begins and ends at a cone point. It is known that on almost every translation surface, the set of angles of saddle connections on the surface is equidistributed in the circle. A finer notion of how random the saddle connection directions are is given by something called the gap distribution of the surface.

In this talk, we will explain what the slope gap distribution of a translation surface is and survey some known results about slope gap distributions, including how one can use properties of the horocycle flow to compute the slope gap distributions of special translation surfaces called Veech surfaces. We'll then discuss results showing that the slope gap distributions of Veech surfaces have to satisfy some nice properties. This project is joint work with Luis Kumanduri and Anthony Sanchez. (Received January 24, 2022)