1151-37-92 **Jane Wang*** (wangjan@iu.edu). *The realization problem for twisted quadratic differentials (dilation surfaces).*

Twisted quadratic differentials, also known as dilation surfaces, are geometric structures that are in a way a generalization of translation surfaces. One way to define a dilation surface is as a collection of polygons with sides identified by translations and dilations by nonzero real factors, whereas translation surfaces only allow side identifications by translations. This small generalization is enough to introduce interesting new dynamical behaviors on dilation surfaces that do not occur for translation surfaces. In this talk, we will introduce dilation surfaces and discuss some of the new and interesting dynamical behaviors that can occur on them. We will then move on to discuss progress on the realization problem for dilation surfaces: what elements and subgroups of the mapping class group can be realized in the affine automorphism of some dilation surface? (Received August 10, 2019)