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Dawei Chen* (dawei.chen@bc.edu), Department of Mathematics, Boston College, Chestnut Hill, MA 02467. *Are affine invariant submanifolds affine?*

An abelian differential defines a flat metric such that the underlying Riemann surface can be realized as a plane polygon. Varying the shape of such polygons induces a $GL(2, \mathbb{R})$ -action on the moduli space of abelian differentials. The corresponding $GL(2, \mathbb{R})$ -orbit closures are called affine invariant submanifolds, where "affine" refers to the locally linear structure under the period coordinates. In this talk we study the amusing question whether affine invariant submanifolds are affine varieties in the sense of algebraic geometry. (Received February 07, 2018)