

Topology, Algebraic Geometry, & Dynamics Seminar

Polygon Spaces

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Given a vector of positive real numbers $\ell = (l_1, \dots, l_n)$, we consider the collection of polygons in \mathbb{R}^d , up to translation, with sidelengths ℓ . Such a collection, called a *polygon space* and denoted $E_d(\ell)$, is an algebraic variety and a topological space that admits a natural action of the special orthogonal group $SO(d)$. It is known that $E_d(\ell)$ is generically a smooth manifold, but that $E_d(\ell)/SO(d)$ contains singularities for generic ℓ if $d > 3$. In this talk we investigate how polygon spaces and their orbit spaces change as we vary ℓ and d . We present new results on the homeomorphism types of $E_d(\ell)/SO(d)$ as d grows; we also present known results on the diffeomorphism types of $E_d(\ell)$ as ℓ varies generically, and we state progress on extending those results to general ℓ .

Date: Friday, April 26, 2019

Time: 2:30-3:20 pm

Place: 4106 Exploratory Hall

For special accommodations, please contact Sean Lawton via email at slawton3@gmu.edu.