Topology, Algebraic Geometry, & Dynamics Seminar

Special nilpotents and Higher Teichmüller spaces.

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We will discuss how higher Teichmüller components of the space of representations of the fundamental group of a closed surface into a real Lie group arise from special nilpotent elements of complex semisimple Lie algebras. In particular, such a nilpotent gives rise to a real Lie group $G$ and an embedding of $PSL(2, \mathbb{R})$ in $G$. The classification of such special nilpotents turns out to be equivalent to Guichard and Wienhard’s recent classification of Theta-positive structures, which is conjecturally how all higher Teichmüller components arise. The upshot of thinking of special nilpotent elements is that we can use $SL_2$ representation theory to parameterize certain components of the moduli space of surface group representations using Higgs bundles. This talk will not assume you know anything about Higgs bundles.

Date: Friday, April 19, 2019
Time: 2:30-3:20 pm
Place: 4106 Exploratory Hall

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