

# Topology, Arithmetic, & Dynamics Seminar

Stable Representation Theory and Spaces of Flat  
Connections

**Daniel Ramras**

Department of Mathematical Sciences, IUPUI  
Indianapolis, IN

Atiyah and Botts famous work on the Yang-Mills functional shows that the space of flat (unitary) connections on a trivial bundle over a Riemann surface is highly connected. For higher dimensional manifolds, the picture is very different. First, I'll explain how certain homotopy classes in the gauge group of a flat bundle  $E$  can be used to construct non-trivial homotopy classes in the space of flat connections on  $E$  (this is joint work with Tom Baird). In particular examples, such as the Heisenberg manifold and the Hantzsche-Wendt manifold, it is possible to construct homotopy classes that do not come from the gauge group. To explain these examples, I'll introduce methods from stable representation theory: deformation K-theory, the deformation representation ring, and the topological Atiyah-Segal map.

Date: **Friday, November 13, 2015**

Time: **2:30-3:20pm**

Place: **4106 Exploratory Hall**

For special accommodations, please contact Sean Lawton via email at [slawton3@gmu.edu](mailto:slawton3@gmu.edu).