

GTAP Seminar

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**Wednesday, March 21, 2012
2:00p.m., HH-3017**

*Spaces of representations and the topological
Atiyah-Segal transformation.*

Abstract:

The relationship between representations of a group and vector bundles was first studied by Atiyah and Segal in the early 1960's, via a construction that associates a vector bundle to each representation. Early work in this direction focussed on finite groups, or compact Lie groups. When one considers infinite discrete groups, such as the fundamental group of a closed manifold, continuous families of representations come into play. In particular, the Atiyah-Segal construction may be generalized so as to associate a vector bundle to each such family. In this talk, I'll explain how methods from differential geometry, algebraic geometry, and homotopy theory can be combined to study this construction, yielding concrete results about vector bundles over familiar spaces such as surfaces and flat manifolds. Parts of this work are joint with Tom Baird, Rufus Willett, and Guoliang Yu.