

Speaker: Guillaume Dreyer
University of Notre Dame

Thursday, August 30, 2012
2:00 pm
258 Hurley Hall

Title: Geometric properties of Anosov representations

Abstract:

Let $\mathcal{R}_{\mathrm{PSL}_n(\mathbb{R})}(S)$ be the $\mathrm{PSL}_n(\mathbb{R})$ -character variety $\mathcal{R}_{\mathrm{PSL}_n(\mathbb{R})}(S)$ of a closed, connected, oriented surface S of genus $g \geq 2$. A preferred component of $\mathcal{R}_{\mathrm{PSL}_n(\mathbb{R})}(S)$ is the Hitchin component $\mathcal{H}(S)$: it contains a copy of the Teichmüller space $\mathcal{T}(S)$, and therefore is regarded as the higher rank Teichmüller space in the case of $\mathrm{PSL}_n(\mathbb{R})$. In order to study the elements of the Hitchin component $\mathcal{H}(S)$, F. Labourie introduced the notion of Anosov representation. Thank to this framework, he proved that every Anosov representation is discrete and injective, some properties already shared by Teichmüller representations. The purpose of this talk is to extend to Anosov representations some hyperbolic geometry tools used in Teichmüller theory: we generalize Thurston's length function and cataclysm deformation, and we analyse how they relate to each other. We shall then discuss how these techniques provide crucial information about a new system of coordinates on the Hitchin space $\mathcal{H}(S)$.