

Conference Talk.

The intersection cohomology of the moduli space of Higgs bundles on a smooth projective curve

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Abstract: Let X be a smooth projective curve of genus g over \mathbb{C} . The *character variety* \mathcal{M}_B parametrizing conjugacy classes of representations from the fundamental group of X into $SL(2, \mathbb{C})$ is an affine irreducible singular projective variety. The *Non Abelian Hodge theorem*, states that there is a real analytic isomorphism between \mathcal{M}_B and the quasi projective singular variety \mathcal{M}_{Dol} which parametrizes semistable Higgs bundles of rank 2 and degree 0 on X . During the seminar I will present a desingularization of these moduli spaces and compute several informations about their intersection cohomology using the famous *Decomposition theorem* by Beilinson, Bernstein, Deligne and Gabber. Time permitting, I will explain some possible applications to the so called $P = W$ conjecture, stated and proved by De Cataldo, Hausel and Migliorini in the case of rank 2 and degree 1 Higgs bundles.

The talk is part of the 2-day meeting <http://schapos.people.uic.edu/SpectralhiggsIII.html> "Current trends on spectral data for Higgs bundles III"

Tuesday, November 14 at 9:30 AM in SEO 636
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