

Geometry, Groups and Dynamics/GEAR Seminar
(held at the Illinois hub of GEAR)

12:00 pm, Thursday, December 1, 2016, 243 Altgeld Hall

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Higgs bundles, Lagrangians and mirror symmetry

Abstract: The moduli space $M(G)$ of G -Higgs bundles on a compact Riemann surface carries a natural hyperkahler structure, for a complex Lie group G . Also, it comes equipped with an algebraically completely integrable system through the Hitchin map. Motivated by mirror symmetry, we will discuss certain complex Lagrangians (BAA-branes) in $M(G)$ coming from real forms of G and give a proposal for the mirror (BBB-brane) in the moduli space of Higgs bundles for the Langlands dual group of G . For the real groups $SU^*(2m)$, $SO^*(4m)$ and $Sp(m,m)$, which are of particular interest as the corresponding Lagrangian never intersect smooth fibres of the Hitchin map, this involves describing the whole fibre which they intersect. We give two different descriptions of such singular fibres and explain how they are related. If time permits we will discuss complex Lagrangians coming from symplectic representations of G and how they relate to other moduli spaces such as the moduli of pairs.

[Video](#)