

Hyperpolygons and parabolic Higgs bundles

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Hyperpolygons spaces are a family of (finite dimensional, non-compact) hyperkaehler spaces, that can be obtained from coadjoint orbits by hyperkaehler reduction. Jointly with L. Godinho, we show that these space are diffeomorphic (in fact, symplectomorphic) to certain families of parabolic Higgs bundles. In this talk, I will describe this relation and use it to analyze the fixed points locus of certain natural involutions on the moduli space of parabolic Higgs bundles. I will show that each connected component of the fixed point locus of these involutions is identified with a moduli space of polygons in Minkowski 3-space.

Also, we discuss the problem of existence of a Hitchin component of representations of G in $PO(2, 2)$.