Séminaire d'algèbre, topologie et géométrie
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Salle I

André Oliveira

Porto

Higher Teichmüller components and magical nilpotents

Consider the moduli space M(G) of G-Higgs bundles on a compact Riemann surface X, for a real semisimple Lie group G. Hitchin components in the split real form case, and maximal components in the Hermitian case, were, for several years, the only known source of examples of higher Teichmüller components of M(G). These components (which are not fully distinguished by topological invariants) are important because the corresponding representations of the fundamental group of X have special properties, generalizing Teichmüller space, such as being discrete and faithful. Recently, the existence of new such higher Teichmüller components was proved for G=SO(p,q) which, in general, is not neither split nor Hermitian. In this talk I will explain the new Lie theoretic notion of magical nilpotent, which yields the classification of groups for which such components exist. It turns out that this classification agrees with the one of Guichard and Wienhard for groups admitting a positive structure. We provide a parametrization of higher Teichmüller components, generalizing the Hitchin section for split real forms and the Cayley correspondence for maximal components in the Hermitian (tube type) case. This is joint work with S. Bradlow, B. Collier, O. García-Prada and P. Gothen.