Seminario de Geometría y Topología

UNIVERSIDAD COMPLUTENSE MADRID

Geometric and algebraic tools in Hodge theory with a view towards character varieties

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Resumen:

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In this talk, we will study some algebro-geometric invariants of parabolic character varieties, i.e. moduli spaces of representations of the fundamental group of a punctured Riemann surface into $SL(2,\mathbb{C})$. In particular, we will focus on their naturally induced mixed Hodge structures on cohomology and we will describe some combinatorial and geometric methods for computing Deligne-Hodge polynomials and Hodge monodromy representations of character varieties.

Moreover, we will introduce a new algebro-combinatorial invariant, constructed using Saito's theory of mixed Hodge modules. This invariant generalizes both Deligne-Hodge polynomials and Hodge monodromy representations and allows us to pushforward information by means of algebraic morphisms, something unavailable with others tools.

Joint work with M. Logares and V. Muñoz.

Lugar: **Universidad Complutense de Madrid**
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