CENTRO DE MATEMÁTICA UNIVERSIDADE DO PORTO

GEOMETRY AND TOPOLOGY SEMINAR

Computational tools for exploring the geometry of moduli spaces

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Abstract. Some features about the geometry of certain moduli spaces, including its main topological invariants, often suffer naturally a combinatorial explosion as the parameters used to build the moduli, like the rank or genus of a curve, increase, making their analysis difficult. In this talk we will present some new computational tools developed to aid the mathematical exploration of these explosive geometries and find nontrivial patterns in the structure of these moduli spaces.

Concretely, we will showcase two ready-to-use python tools, "polypart" and "motives", which have been developed to allow a computational exploration of stability chambers, isomorphism classes, symmetries and motives of moduli spaces, showing concrete applications on moduli spaces of vector bundles, parabolic vector bundles and twisted Higgs bundles.

Joint works with Jacobo Banús, Tomás Gómez, Sergio Herreros, Javier Rodrigo, Daniel Sánchez, Jaime Pizarroso and José Portela.

THURSDAY, MAY 07 **11H00** **ROOM: 1.09**

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