Phd Pre-Defense

AUTOMORPHISM GROUP OF THE MODULI SPACE OF PARABOLIC VECTOR BUNDLES OVER A CURVE

SPEAKER: David Alfaya (ICMAT)

PHD THESIS ADVISOR: Tomás Luis Gómez de Quiroga (ICMAT)

TUTOR: Rafael Hernández García (UAM)

DATE: Tuesday 4 September 2018 - 12:00

VENUE: Aula 520, Módulo 17, Departamento de Matemáticas, UAM (Campus de Cantoblanco, Madrid)

ORGANISER: UAM - ICMAT

ABSTRACT: We will start by defining the notion of a parabolic $\Lambda$-module – a module over a sheaf of rings of differential operators $\Lambda$ with a parabolic structure at certain marked points – and building their moduli space. This will provide us a common theoretical framework that allows us to work with several kinds of moduli spaces of bundles with parabolic structure such parabolic vector bundles, parabolic (L-twisted) Higgs bundles, parabolic connections or parabolic $\lambda$-connections.

Then, we find the automorphism group of the moduli space of parabolic bundles on a smooth curve (with fixed determinant and system of weights). This group is generated by: automorphisms of the marked curve, tensoring with a line bundle, taking the dual, and Hecke transforms (using the filtrations given by the parabolic structure). A Torelli theorem for parabolic bundles with arbitrary rank and generic weights is also obtained. These results are extended to the classification of birational equivalences which are defined over “big” open subsets (3-birational maps).

Finally, the automorphism group of the moduli space of framed bundles over a smooth complex projective curve with a framing over a point is also described. It is shown that this group is generated by pullbacks using automorphisms of the curve that fix the marked point, tensorization with certain line bundles and the action of PGL by composition with the framing.