

Torelli theorem for moduli stacks of vector bundles and principal G -bundles

D. Alfaya Sánchez; I. Biswas; S. Mukhopadhyay; T.L. Gómez de Quiroga

Abstract-

Given any irreducible smooth complex projective curve X , of genus at least 2, consider the moduli stack of vector bundles on X of fixed rank and determinant. It is proved that the isomorphism class of the stack uniquely determines the isomorphism class of the curve X and the rank of the vector bundles. The case of trivial determinant, rank 2 and genus 2 is specially interesting: the curve can be recovered from the moduli stack, but not from the moduli space (since this moduli space is \mathbb{P}^3 thus independently of the curve).

We also prove a Torelli theorem for moduli stacks of principal G -bundles on a curve of genus at least 3, where G is any non-abelian reductive group.

Index Terms- Torelli theorem; Moduli stack; Higgs bundle; Hitchin map

Due to copyright restriction we cannot distribute this content on the web. However, clicking on the next link, authors will be able to distribute to you the full version of the paper:

[Request full paper to the authors](#)

If your institution has an electronic subscription to Journal of Geometry and Physics, you can download the paper from the journal website:

[Access to the Journal website](#)

Citation:

Alfaya, D.; Biswas, I.; Gómez, T.L.; Mukhopadhyay, S. "Torelli theorem for moduli stacks of vector bundles and principal G -bundles", Journal of Geometry and Physics, vol.207, pp.105350-1-105350-15, January, 2025.