First French-Spanish Congress of Mathematics
Zaragoza, July 9–13, 2007

Topics in the classification of local systems

Carlos Simpson

We discuss a joint result with K. Corlette classifying local systems of rank 2 on a complex quasiprojective variety [1]. We also discuss the basics of the classification of local systems over $\mathbf{P}^1 - \{x_1, \ldots, x_k\}$ based on Katz's algorithm [3]. Finally we discuss a simplified approach to local systems over a quasiprojective variety by compactifying with Deligne-Mumford stacks, and a related formula for the Chern classes of a parabolic bundle [2].

Keywords: Fundamental group, Representation, Quasiprojective variety, Middle convolution, Deligne-Mumford stack, Parabolic bundle

Mathematics Subject Classification 2000: 14F35

References

[1] K. Corlette and C. Simpson. On the classification of rank two representations of quasiprojective fundamental groups. Preprint `arXiv:math/0702287`.

[2] J. N. Iyer and C. Simpson. The Chern character of a parabolic bundle, and a parabolic Reznikov theorem in the case of finite order at infinity. Preprint `arXiv:math/0612144`.

[3] C. Simpson. Katz's middle convolution algorithm. Preprint `arXiv:math/0610526`. To appear, *Pure and Applied Math. Quarterly.*

[1]CNRS, Laboratoire J. A. Dieudonné
Université de Nice-Sophia Antipolis
06108 Nice Cedex 02, France
`carlos@math.unice.fr`