Séminaire d'algèbre, topologie et géométrie
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Salle I

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ENS

Beyond the fundamental group

Résumé : Moduli spaces of representations of the fundamental group of a Riemann surface have been studied from numerous points of view and appear in many parts of mathematics and theoretical physics. They form an interesting class of algebraic symplectic manifolds, they often have Kähler or hyperkähler metrics (in which case they are diffeomorphic to spaces of Higgs bundles, *i.e.* Hitchin integrable systems), and they admit nonlinear actions of braid groups and mapping class groups with fascinating dynamical properties.

The aim of this talk is to describe some aspects of this story as well as its extension to the context of *irregular* connections on curves, i.e. more general than the regular singular connections appearing in Deligne's (1970) Riemann-Hilbert correspondence. In particular many new examples of complete hyperkähler manifolds appear in this way (some of which are familiar, without the metrics, from classical work on Painlevé equations) and a richer class of braid group actions arises, extending the well-known braid/mapping class group actions on spaces of fundamental group representations.