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Quantum moduli spaces of meromorphic connections on Riemann surfaces

Monday 16 September 2024 17:30 (1 hour)

Let G be a complex reductive Lie/algebraic group. Certain (de Rham) moduli spaces of regular singular meromorphic connections, defined on principal G-bundles over the Riemann sphere, have natural (complex) Poisson/symplectic structures. These can be deformation-quantised, and generically lead to spaces of (co)invariants for tensor products of Verma modules for $\mathfrak{g} = Lie(G)$: in turn, they are related to spaces of (co)vacua for the affine version of g, towards the usual conformal blocks of the Wess–Zumino–Novikov–Witten (WZNW) model in 2d conformal field theory.
Moreover, upon deforming the position of the simple poles of the meromorphic connections in admissible fashion, a Poisson/symplectic braid-group action arises on the (Betti) moduli spaces of monodromy data, viz. the G-character varieties of punctured spheres; and this action was later interpreted as the semiclassical limit of the Drinfel'd–Kohno braiding, i.e. precisely the monodromy of the flat vector bundle of WZNW conformal blocks.

In this talk we will aim at a review of part of this story, and then present extensions about irregular singular meromorphic connections.
In alphabetical order, this is past/present work with P. Boalch, D. Calaque, J. Douçot, G. Felder, M. Tamiozzo, and R. Wentworth.

Presenter: REMBADO, Gabriele (Université de Montpellier)