

The Turaev cobracket for genus 0 and the Kashiwara-Vergne problem

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Abstract: This is based on a joint work with A. Alekseev, N. Kawazumi and F. Naef. Due to results of Goldman and Turaev, there is a natural Lie bialgebra structure on the vector space spanned by the (homotopy classes of) free loops on an oriented surface. As was shown by Kawazumi and Kuno, and later by Massuyeau and Turaev with some refinement, the Goldman bracket has an algebraic description, i.e., one can express it in terms of derivations on the tensor algebra generated by the first homology of the surface. Now it is natural to ask for such a description for the Turaev cobracket. In the genus 0 case, recently G. Massuyeau obtained a simple algebraic description of the Turaev cobracket by using the Kontsevich integral. In this talk, we will show that the same description can be obtained by using any solution of the Kashiwara-Vergne problem.