

GEOMETRY AND PHYSICS SEMINAR

Dia 12 Dezembro (quarta-feira), às 11h00, sala 6.2.33

Opers for higher states of quantum KdV models

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Abstract: Let \mathfrak{g} be an untwisted affine Kac-Moody algebra, and consider the \mathfrak{g} -valued quantum KdV model, obtained from the quantization of the second Poisson bracket for the Drinfeld-Sokolov construction. The eigenvalues of the Q-operators for the quantum system satisfy the Bethe Ansatz equations. The ODE/IM correspondence affirms that at each state of the quantum model, solutions of the Bethe Ansatz equations can be obtained from a certain opers with values in $L_{\mathfrak{g}}$, the Langlands dual Lie algebra of \mathfrak{g} . At the ground state this was shown in the \mathfrak{sl}_2 case by Dorey and Tateo and in full generality (i.e. for every simple Lie algebra \mathfrak{g}) in D. Masoero et al. (Comm Math Phys 2016, 2017). For higher states only the \mathfrak{sl}_2 case was available, with the appropriate opers being obtained by Bazhanov, Lukyanov and Zamolodchikov. In this talk, I will show how - following a recent insight by Frenkel and Hernandez - one can explicitly construct opers for the higher states of \mathfrak{g} -valued quantum kdV, for every simply laced affine Kac-Moody algebra \mathfrak{g} . The talk is based on the joint work with Andrea Raimondo available at arXiv.1812.00228.

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