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Talk: Quantum local charges in chiral affine Gaudin models

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Affine Gaudin models are field theories built from Kac-Moody currents. At the classical level, they are known to be integrable, in the sense that they admit an infinite family of Poisson-commuting charges. However, their quantum integrability is so far still conjectural. A natural starting point for exploring this question is the case of chiral affine Gaudin models, for which the underlying Kac-Moody currents are all either left-moving or right-moving fields of a conformal two-dimensional theory, whose quantisation can thus be described using the standard vertex operator algebra formalism. In this talk, I will present first results and conjectures on the study of quantum integrable structures in chiral affine Gaudin models and more precisely on the construction and the diagonalisation of an infinite family of commuting local charges in the current vertex operator algebra. This formalism finds application in the quantisation of certain integrable sigma models at their conformal points, as discussed in the talk of J. Teschner.

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