

On the origin of the correspondence between quantum integrable system and classical models

Monday, 19 December 2022 15:45 (20 minutes)

I will discuss a non-perturbative procedure on how to derive a classical systems, in the form of a Lax pair, from a quantum integrable model. I will exemplify the method by starting from the quantum sine-Gordon model and deriving a Lax pair containing the solution of the classical sinh-Gordon equation. The link between quantum and classical theory is provided by a Marchenko-like equation, which descends from the quantum TQ -system and is the basis for deriving the Lax pair. This construction reverses and justifies the usual construction in the Ordinary Differential Equation/Integrable Model correspondence.

The talk is based on paper arXiv: 2106.07600 with D.Fioravanti.

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