



Istituto Nazionale di Fisica Nucleare

Bologna Workshop on:

## CFT AND INTEGRABLE MODELS

and their applications from gauge/gravity dualities to statistical mechanics and quantum information



Contribution ID: 169

Type: **Invited talk**

## Inverse Scattering from Spectral Curves

*Tuesday, 5 September 2023 09:00 (50 minutes)*

Integrability equips models of theoretical physics with efficient methods for the exact construction of useful states and their evolution. Relevant tools for classical integrable field models in one spatial dimension are spectral curves in the case of periodic fields and inverse scattering for asymptotic boundary conditions. Even though the two methods are quite different in many ways, they must be related by taking the periodicity length of closed boundary conditions to infinity.

Using the Korteweg-de Vries equation and the continuous Heisenberg spin field as prototypical classical integrable field models, we discuss and illustrate how data for spectral curves transforms into asymptotic scattering data. In order to gain intuition and also for concreteness, we review how elliptic states for these models degenerate into solitons at infinite length.

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