

Title: Solutions of the Bethe Ansatz Equations as Spectral Determinants.

Abstract: The Quantum KdV model is a conformal field theory, which is integrable via the Bethe Ansatz Equations. It can be regarded as a deformation of the second KdV hamiltonian structure or as the scaling limit of the XXZ chain. In 1998, Dorey and Tateo discovered that the Bethe roots for the the ground state of the Quantum KdV model coincides with the eigenvalues of certain anharmonic oscillators (ODE/IM correspondence). In 2004, Bazhanov, Lukyanov & Zamolodhchikov conjectured that the Bethe roots of every state of the model are the eigenvalues of a linear differential operator, namely an anharmonic oscillator with a monster potential. In this talk, I provide an outline of the proof -- conditional on the existence of a certain Puiseux series -- of the BLZ conjecture, that I have recently obtained in collaboration with Riccardo Conti.