

TT* equations of Cecotti and Vafa, Riemann-Hilbert method and Iwasawa factorization.

Thursday, May 26, 2022 9:30 AM (45 minutes)

In this talk, some interesting (we believe !) new features of the Riemann-Hilbert method of the asymptotic analysis of integrable systems will be discussed. These features have emerged during the study of the global solution of the *tt* equations of Cecotti and Vafa which the speaker has been pursuing, for some time already, together with M. Guest and Chang-Shou Lin. The method which we use in this study is based on a combination of the isomonodromy technique and Iwasawa factorization from the theory of loop groups. This allows us to simplify significantly the asymptotic analysis of the *tt* equations and, simultaneously, to bring a new light on some aspects of the well known relation between the Birkhoff-Grothendieck and Iwasawa factorizations. Another important link - to a 1980 paper by I. Krichever on the nonlinear analog of the d'Alembert's formula, will be also highlighted.

The talk represents an ongoing joint project of M. Guest, I. Krichever, and the speaker.

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