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Zeros of isomonodromic tau functions and holomorphic anomaly equation

Wednesday, 11 June 2025 15:00 (20 minutes)

Isomonodromic tau functions have explicit expressions as sums of c=1 conformal blocks (or Nekrasov functions), known as the Kyiv formulas, discovered by Gamayun, Iorgov, and Lisovyy. The zeros of these tau functions are described by classical, or c=∞ conformal blocks, also identified with the Painlevé action on the trajectory. We analyze an expansion of the tau function around its zero and combine it with the genus expansion of the conformal block. Modular properties of the tau function are well-defined and imply the modular properties of the conformal block. Namely, we prove that the conformal block satisfies the so-called holomorphic anomaly equation as a function of E_2 quasimodular form. The talk will be based on the paper https://arxiv.org/abs/2410.17868.

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