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Painlevé II tau-function as a Fredholm determinant

Monday, September 14, 2020 12:40 PM (30 minutes)

The tau-functions of certain Painlevé equations (III, V, VI) can be expressed as Fredholm determinants of a composition of two suitable Toeplitz operators, called the Widom constant. The key feature of this construction is to reduce the Riemann-Hilbert problem (RHP) associated to the isomonodromic system to a RHP on the circle. In this talk, I will show that the generic Painlevé II tau-function can be expressed as a Fredholm determinant of an integrable (Its-Izergin-Korepin-Slavnov) operator by recasting the RHP of Painlevé II as a RHP on the imaginary axis. This talk is based on the preprint ArXiv:2008.01142v2.

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