

# Quantum monodromy of conformal blocks and isomonodromic deformations

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Liouville conformal blocks are matrix elements of products of chiral vertex operators intertwining irreducible representations of the Virasoro algebra. Conformal blocks containing level 2 degenerate insertions solve a quantum version of the isomonodromic Riemann-Hilbert problem: the relevant monodromy matrices are operator-valued and involve translations of the intermediate momenta. When the Virasoro central charge is equal to 1, quantum monodromy contains a commutative subalgebra. Its action on spaces of degenerate conformal blocks may be diagonalized by Fourier transform which produces an ordinary  $SL(2)$ -valued monodromy. We thereby obtain an explicit solution of the classical Riemann-Hilbert problem on the sphere with an arbitrary number of punctures and the associated tau function of the Garnier system as Fourier transforms of  $c = 1$  Liouville conformal blocks. If time allows, I will also discuss an extension of this construction to the  $W$ -algebra conformal blocks and Tsuda system.

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