

# Intersections of Topological Recursion, Conformal Field Theory, and Random Geometry



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*Friday 29 August 2025 09:00 (1 hour)*

Semiclassical Limit of Conformal Blocks, Nekrasov–Rosly–Shatashvili Relations, and the Trieste Formula for the Heun Equation.

This talk reviews recent advances in understanding the semiclassical limit of conformal blocks on the torus. Within this framework, we present ongoing work on the Nekrasov–Rosly–Shatashvili relations in gauge theory, their implications for semiclassical Liouville theory, and strategies for proving these relations via semiclassical analysis of conformal blocks. We also explore recent developments on exact connection formulas for integrable ODEs. In particular, for the Heun equation — which governs the semiclassical limit of the four-point conformal block — an explicit formula for its connection constant, known in the physics literature as the Trieste formula, has been conjectured via conformal field theory, and we show how to prove this conjecture rigorously.