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Geometric and Algebraic Constructions of Quantum Integrable Hierarchies

Tuesday 7 October 2025 15:30 (1 hour)

The theory of integrable hierarchies is deeply related to the enumerative geometry, and in particular, quantum integrable hierarchies provide efficient tools to compute Gromov-Witten invariants via the symplectic field theory. In this talk, I will compare two different ways for constructing quantum integrable hierarchies. One construction is geometric and given by A. Buryak and P. Rossi by considering the Hodge integrals over double ramification cycles, and the other one is algebraic by applying Weyl quantization to vertex algebras. I will explain these two constructions through the example of the quantum dispersionless KdV hierarchy which corresponds to the symplectic field theory of a disk.

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