

# Recent developments in matrix models and conformal field theory

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## Abstract:

Integrability plays a prominent role in modern quantum field theory. It is a universal property of effective actions, obtained as result of functional integration, and reflects the freedom to change integration variables. Many examples are already known, though each time revealing the hidden integrable structure takes certain effort and becomes a piece of art. Each time effort is justified: once established, integrability provides a powerful tool for performing the technically involved calculations and promotes the subject into a quantitative, not just qualitative science. The talk will mostly focus of recent developments around the AGT conjecture, which unifies a number of seemingly different topics, from 2d conformal theory to hypergeometric series, from matrix models to Hurwitz numbers, from instanton calculus to knot invariants, from Seiberg-Witten theory to AdS/CFT-correspondence. It is in this context that quantum, not just classical, integrability manifests itself in the properties of effective actions. This is a new development with broad perspectives and many potential applications.

## References:

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