

CRC Colloquium

10 January 2025 | 3:15-4:45 pm | lecture hall M3

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Moduli spaces of curves and mathematical physics

We give an introduction to the (compactified) moduli space of (stable) curves alias Riemann surfaces of genus g with n marked points. This includes a description of the boundary divisor as well as tautological characteristic classes. The geometry of this boundary divisor and the structure of generating functions for tautological intersection numbers have a common recursive structure. This connects via “topological recursion” to several areas of mathematical physics, such as matrix models and integrable systems. We will also survey the construction of certain vector bundles on this moduli space and explain how they are related to arithmetic aspects of the CRC.

Followed by an informal reception in the Common Room of the Cluster (Orléans-Ring 10).

This lecture will take place in the context of the Wilhelm Killing Colloquium.