"The Trans-Carpathian Seminar on Geometry & Physics"

(See also the Geometry & Physics @ DFT seminar homepage)

Date: Wednesday, Dec. 18, 2024, 15:15 EET (Bucharest time)

Location: online via Zoom

Speaker: **Prof. Anton Alekseev** (Université de Genéve)

Title: **Jackiw-Teitelboim gravity, Teichmüller spaces, and Virasoro algebra**

Abstract: We will explain the relation between (infinite dimensional) Teichm uller spaces of hyperbolic metrics on oriented 2-manifolds with ideal boundary and the Virasoro algebra. This work is motivated by recent results on Jackiw-Teitelboim gravity, and by the study of moduli spaces of flat connections on surfaces with boundary.

In the first part of the talk, we will recall the relation between Hamiltonian actions of Lie algebras and their central extensions, and we will consider an example given by the Meinrenken-Woodward theory of Hamiltonian actions of loop groups on moduli spaces of flat connections.

In the second part of the talk, we will turn to an example of Teichmüller spaces associated to surfaces with ideal boundary. We will show that they carry a natural Hamiltonian action of diffeomorphisms of the boundary, and that this action gives rise to the Virasoro central extension.

The talk is based on a joint work with Eckhard Meinrenken, see arXiv:2401.03029

The talk is planned for 2x45 min with a break. If time permits, we will state some open problems in the field.