"The Trans-Carpathian Seminar on Geometry & Physics"

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

Date: Wednesday, Oct. 15, 2025, 15:15 EET (Bucharest time)

Location: online via Zoom

Speaker: **Athanasios Chatzistavrakidis** (Boskovic Institute, Zagreb)

Title: **Basic curvature tensors in geometry and physics**

Abstract: The concept of basic curvature first appeared implicitly in the study of deformed infinitesimal symmetries and Cartan-Lie algebroids. Subsequently, it was used to define the adjoint and coadjoint representations for Lie algebroids. In physics, the basic curvature tensor first appeared in the BV formulation of (twisted) Poisson sigma models. Apart from these instances, there are several other related problems in geometry and physics where the basic curvature and its accompanying structures become important. In the first part of this talk, I will discuss basic connections and basic curvature tensors for Lie, Courant and, partially, Lie n-algebroids and briefly about their relation to dg manifolds and their Atiyah class. In the second part of the talk, I will focus on applications in physics. I will discuss a unifying framework for supersymmetric Poisson sigma models, and I will briefly comment on the construction of gravity models from a Lie 2-algebroid perspective and on the BV formulation of Dirac and twisted Courant sigma models.

The talk is planned for 2x45 min.