"The Trans-Carpathian Seminar on Geometry & Physics"

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

Date: Wednesday, Oct. 23, 2024, 15:00 Bucharest time

Location: online via Zoom

Speaker: **Prof. Alexander Schmeding** (NTNU, Trondheim)

Title: **Linking infinite-dimensional and higher differential geometry**

Abstract: To every finite dimensional manifold one can construct its diffeomorphism group and this group not only appears in many mathematical and physical applications but also determines (up to diffeomorphism) the underlying manifold.

In situations with more structure, a corresponding mechanism is known which takes one from a (finite-dimensional) Lie groupoid to an infinite-dimensional Lie group, the so-called bisection group. We will provide a gentle introduction to infinite-dimensional Lie groups and the mechanism of how key examples (e.g., diffeomorphisms and bisections) arise in translating finite-dimensional geometric problems to infinite-dimensional geometry (and the other way around). The talk will assume a minimal amount of previous knowledge (and we will try to avoid technical details). The aim is to provide a panoramic picture of the mathematical landscape together with some key examples.