

**”The Trans-Carpathian Seminar on Geometry & Physics”**

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

*Date:* Wednesday, May 8, 2024, 15:15 Bucharest time

*Location:* online via Zoom ([Join Zoom Meeting](#))

*Speaker:* **Dr. Javier de Lucas** (KMMF, FUW, Poland)

*Title:* **The local classification of finite-dimensional Lie algebras of analytic Hamiltonian vector fields on the plane**

*Abstract:* First, I will review the classification of locally diffeomorphic finite-dimensional Lie algebras of analytic vector fields on the plane, accomplished by Sophus Lie, following the modern approach by Artermio Gonzalez-Lopez, Niki Kamran, and Peter J. Olver, who also clarified certain issues in the initial classification. I will study which Lie algebras of the classification are diffeomorphic to Lie subalgebras of others, as well as other relevant properties. Then, I will determine the subclass of Lie algebras that are locally Hamiltonian relative to a symplectic structure. Finally, I will explain how to use the classification to study relevant types of Hamiltonian systems on the plane and other related results.