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A Talk at the 2nd ISNMP Conference

Bad Ems, 28 June to 4 July 2026

Regular Session:

Speaker: Maryna Nesterenko (Institute of Mathematics, NAS of Ukraine & Kyiv School of Economics, Ukraine)

Title: *Contractions of Lie Algebras and their Realizations*

Abstract: A contraction of a Lie algebra is a limiting procedure that transforms one Lie algebraic structure into another. Such transformations play an important role in mathematical physics, providing systematic links between different physical theories, describing symmetry reductions, and arising naturally in the study of invariant differential equations.

In this talk, we will present several approaches to Lie algebra contractions and discuss criteria for their existence. We will analyze Hasse diagrams that encode contraction relations among low-dimensional and nilpotent Lie algebras over the real and complex fields. In addition, we will consider the problem of constructing contractions of realizations and limit relations between invariant models.