Mathematical Physics
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I N V I T A T I O N

as part of the Mathematical Physics Theory Seminar

to the talk by

Alexander SCHENKEL

(University of Trento)

on

"Integrable field theories in two and higher dimensions"

Abstract:

In this talk, I will explain how the relationship between 2d integrable field theories and 4d semi-holomorphic Chern-Simons theories discovered by Costello and Yamazaki admits a rigorous and conceptually clean description in terms of the homotopy theory of L_∞ - algebras. In particular, through a combination of techniques from complex geometry and homotopy transfer, I will show how to extract from a semi- holomorphic Chern-Simons theory its associated integrable field theory and provide a novel perspective on Lax connections in terms of ∞- morphisms. I will conclude by illustrating how this framework scales to arbitrary dimensions and thereby provides some structural insights into the elusive topic of higher-dimensional integrability.
This talk is based on joint work with M. Benini and B. Vicedo [arXiv:2601.19993] and with M. Benini, R. Cullinan and B. Vicedo [arXiv:2604.24864].

Time: Tuesday, 30 June 2026, 2:00 p.m.

Location: Erwin-Schrödinger Lecture Hall, 1090 Vienna, Boltzmanngasse 5, 5th floor

sgd. S. Fredenhagen, M. Sperling