



# ***EINLADUNG***

Seminars für Mathematische Physik

zum Vortrag

von

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über

*„Infinite distances in multicritical CFTs and higher-spin holography“*

**Abstract:**

The swampland distance conjecture states that, approaching an infinite-distance limit in moduli space in a theory of gravity admitting an UV completion, asymptotically (i) an infinite tower of states becomes light and (iii) the masses vanish exponentially.

In the AdS/CFT context, the tower of states is dual to a higher-spin tower of currents and the exponential decay concerns their anomalous dimensions. This conjecture has been elaborated from the analysis of examples in String Theory.

In this talk we discuss how one can test it also in higher-spin gravity, which provides another candidate UV complete theory of gravity, by exploiting its CFT reformulation.

To this end, one can study multicritical generalizations of large- $N$  vector models, bosonic and fermionic, and compute the quantum information distance along selected renormalization-group trajectories toward the higher-spin limit. In contrast to the expected exponential decay of higher-spin masses or anomalous dimensions, infinite-distance limits in these models lead to a power-like decay. This suggests that stringy exponential decays are characteristic of matrix-like gauge theories, rather than vector models.

We corroborate this notion studying the information distance along coupling variations in Chern-Simons-matter CFTs, where matrix-like degrees of freedom dominate over vector-like ones.

**Zeit:** Donnerstag, 16.03.2023, **13.00 h**

**Ort:** Ernst-Mach-Hörsaal, Fakultät für Physik, Boltzmannngasse 5, 2. Stock

gez.: S. Fredenhagen