



INVITATION

as part of the Mathematical Physics Theory Seminar

to the talk by

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on

“Logarithmic Doublets in Celestial CFT”

Abstract:

The AdS/CFT correspondence is a duality stating that quantum gravity in an AdS spacetime is equivalent to a conformal field theory (CFT) on its boundary. Its development has been a central topic in theoretical physics for the past 25 years. However, its extension to non-AdS backgrounds, such as flat space, remains challenging. A recent proposal suggests that 4D quantum gravity in flat space could be dual to a 2D celestial CFT on the sphere. The discovery of deep connections between Weinberg’s soft theorems and asymptotic charge conservation established a direct link between bulk soft operators and celestial CFT symmetry generators, including the stress tensor. This led to the computation of the CCFT central charge, which was found to be zero. Since a unitary CFT with vanishing central charge is trivial, alternative nontrivial CFTs must be considered. One such class is logarithmic CFTs (LCFTs), characterized by logarithmic behavior in correlation functions. In our work, we analyzed the field content of CCFT and found that two specific infrared bulk modes form a logarithmic CFT doublet. We discuss this result in relation to previous observations of logarithmic structures in the IR-finite part of celestial OPEs.

Time: Tuesday, 11 March 2025, 2:00 p.m.

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

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