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CENTER FOR THEORETICAL PHYSICS



# Arnold Sommerfeld Lecture Series

Professor Hirosi Ooguri

Caltech & IPMU, Tokyo University

Theory Colloquium:

Constraints on Quantum Gravity

Although predictions of quantum gravity are typically at extremely high energy, several non-trivial constraints on its low energy effective theory have been found over the last decade or so. I will start by explaining why the unification of general relativity and quantum mechanics has been difficult. After introducing the holographic principle as our guide to the unification, I will discuss its use in finding constraints on symmetry in quantum gravity. I will also discuss other conjectural constraints on low energy effective theories, collectively called swampland conditions, and their consequences.

Wednesday, June 28, 2023, 16:15 h, Room A348, Theresienstr. 37, LMU,  
and via Zoom