Department of Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

Averaged null energy and the renormalization group

(Zoom Seminar)

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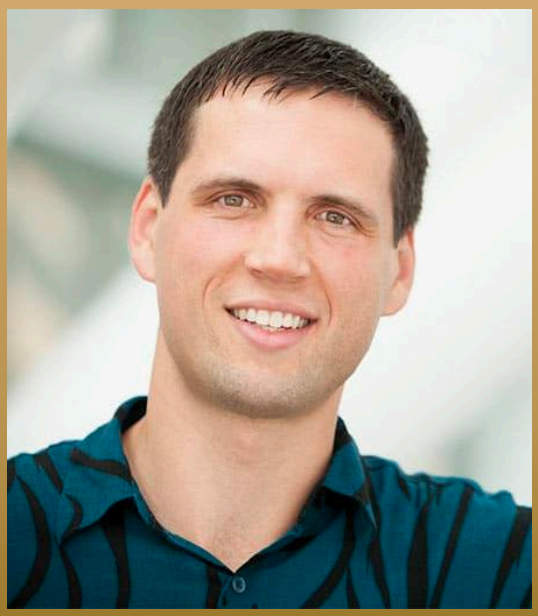
Date: November 13, 2023

Time: 5:30 PM IST

Zoom link shall be shared separately



The averaged null energy operator is a light-ray integral of the null energy. This operator is known to be closely tied to causality in AdS/CFT, to deformations of the modular Hamiltonian in quantum field theory, and to the Lorentzian inversion formula in CFT. I will discuss a new connection between averaged null energy and the monotonicity of the renormalization group in two and four dimensions. In particular I will describe a new derivation of the c-theorem in two dimensions, and the a-theorem in four dimensions, from the averaged null energy condition, or ANEC. The derivation is based on contact terms that appear in correlation functions of the light-ray operator, and it hints at a more general role for Lorentzian inversion and light-ray operators in non-conformal QFTs.