HARVARD UNIVERSITY
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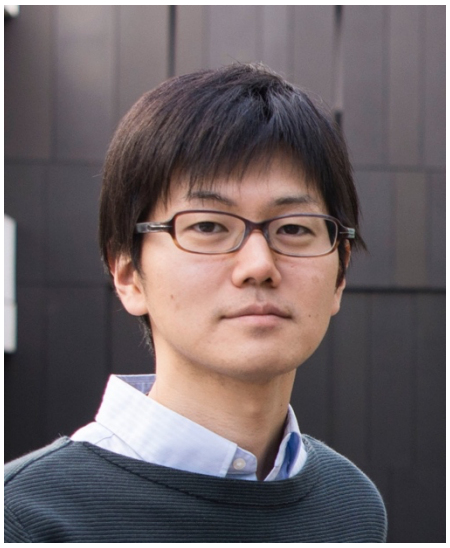
Mathematical Picture Language Seminar



Tuesday, January 31, 2023

9:30 a.m. Boston time

Beni Yoshida
Perimeter Institute

Holographic Scattering from Quantum Error-Correction

Abstract: We revisit the problem of how interactions emerge in quantum gravity. Namely, we show that bulk scattering of multiple particles in the AdS space requires multipartite entanglement on the boundary. This statement can be proven by two totally different methods, 1) general relativity and 2) quantum cryptographic argument. Furthermore, we argue that interactions among particles in the scattering event emerge from the mechanism of entanglement-assisted quantum error-correcting codes (EAQECCs) which utilize pre-existing multipartite entanglement in CFT. We also propose a concrete protocol to implement a certain class of multi-partite unitary interactions by using transversal logical operators of quantum codes. This talk is based on a recent work with Alex May and Jonathan Sorce.

Zoom QR Code & Link:
https://harvard.zoom.us/j/779283357?pwd=MitXVm1pYUlJVzZqT3lwV2pCT1ZUQT09

https://mathpicture.fas.harvard.edu/seminar