Department of Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

Holography beyond AdS: buildings and fractals

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Time: 11 AM IST

Venue: A-304
Zoom link shall be shared separately

Which spaces naturally admit a holographic correspondence? I will introduce a large class of spaces based on the theory of hyperbolic buildings, that provide a unifying framework for the construction of holographic tensor networks. The underlying dualities relate a Gromov hyperbolic building as the bulk space, which in the simplest cases can be viewed as non-planar “branched” tessellations of hyperbolic space, to a boundary which can in general be homeomorphic to a fractal. For a suitably chosen set of regions the networks obey complementary recovery and a Ryu-Takayanagi formula. The areas of Ryu-Takayanagi surfaces follow power laws controlled by the Hausdorff dimension of the fractal boundary, and consistently generalize the behavior of holographic entanglement entropy in integer dimensions to the non-integer case.