

HARVARD UNIVERSITY
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**Tuesday, January 5, 2021, at 10:00 (Boston)
15:00 (UK/Eire) 16:00 (C.Europe) 23:00 (China)**

Mathematical Picture Language Seminar

Zoom at: <https://harvard.zoom.us/j/779283357?pwd=MitXVm1pYUIJVzZqT3lwV2pCT1ZUQT09>

Fundamental bound on time signal generation

Renato Renner, ETH Zurich

Abstract: Does quantum theory impose any limits on how accurately we can map out spacetime and, if yes, what are they? This question has been studied already in the early days of quantum theory, but it is still a topic of current research. If one takes an operational perspective then the answer obviously depends on how accurately we can generate and measure time signals. In this talk I will present a bound on the latter. Specifically, I will show that the accuracy of a time signal generated by a quantum device is fundamentally limited by an information-theoretic quantity, which we call the “controllable dimension” of the device. (This is joint work with Yuxiang Yang, arXiv:2004.07857.)

