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Department of Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

Gravitational collapse in SYK models and Choptuik-like phenomenon

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Venue: A-304, TIFR

We consider quantum quench in a deformed SYK model which permits a low energy description in terms of pseudo Nambu Goldstone modes. The bulk dual represents a gravitational collapse, represented by a bulk matter stress tensor which is discontinuous in time near the boundary. Collapse to a black hole requires the quench parameter $\Delta\epsilon$ to exceed a certain critical value $\Delta\epsilon_c$. This corresponds to a Choptuik-like phenomenon with the Hawking temperature of the resulting black hole given by $T_{bh} \propto (\Delta\epsilon - \Delta\epsilon_c)^{1/2}$.

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