



Department of  
Theoretical Physics

# THE QUANTUM SPACETIME SEMINAR SERIES

## Quantum Gravity from Timelike Liouville

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**Date:** Jan 03, 2019

**Time:** 11.30 am

**Venue:** A-304, TIFR



A proper definition of the path integral of quantum gravity has been a long standing puzzle because the conformal factor of the Euclidean metric has a wrong-sign kinetic term. We propose a definition of two-dimensional quantum gravity with cosmological constant using conformal bootstrap for the timelike Liouville theory coupled to supercritical matter. We prove a no-ghost theorem for the states in the BRST cohomology. We show that the four point function constructed by gluing the timelike DOZZ three point functions is well-defined and crossing symmetric with the choice of the Ribault-Santachiara contour for the internal momenta but with external momenta corresponding to physical states in the BRST cohomology.

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