ICTS Thesis Defense Seminar

Title : The Hilbert space of de Sitter quantum gravity

Speaker : Priyadarshi Paul (ICTS-TIFR, Bengaluru)

Date : Thursday, 28 November 2024

Time : 3:30 PM (IST)

Abstract : We obtain solutions of the Wheeler-DeWitt equation with positive cosmological constant for a closed universe in the large-volume limit. We argue that this space of solutions provides a complete basis for the Hilbert space of quantum gravity in an asymptotically deSitter spacetime. Our solutions take the form of a universal phase factor multiplied by distinct diffeomorphism invariant functionals, with simple Weyl transformation properties, obeying the same Ward identities as a CFT partition function. The Euclidean vacuum corresponds to a specific choice of such a functional but other choices are equally valid. Each functional can be thought of as specifying a "theory" and the space of solutions is like "theory space". We describe another basis for Hilbert space where all states are represented as excitations of the vacuum that have a specific constrained structure. This gives the finite GN generalization of the basis proposed by Higuchi in terms of group averaging.

Venue : Emmy Noether Seminar Room
Zoom Link: https://icts-res-in.zoom.us/j/97562464877?pwd=tlq1rcLHDjJPemzcuTgrKADd0ZlT3a.1
Meeting ID: 975 6246 4877
Passcode: 982218