Contribution ID: **10** Type: **not specified**

Contributed Talk - Complex Metrics and Degeneracies in Quantum Cosmology - Manishankar Ailiga, CHEP, IISc

Saturday 23 August 2025 11:00 (30 minutes)

Picard–Lefschetz theory has been a powerful tool for identifying the relevant saddle points of the Lorentzian gravitational path integral. However, this method becomes ill-defined when degeneracies arise in the system, and such issues must first be resolved. Once addressed, the relevant saddle points can be determined unambiguously. In general, these saddle points are complex, and it has been shown that they can correspond to both physical and unphysical scenarios. This naturally arises the question of whether there exists any systematic way to classifying the complex metrics. Recently, Witten has addressed this question, providing a bound the helps in the distinction. In my talk, within the minisuperspace approximation, I will discussing about a natural cure offered by the system in resolving degeneracy problem, followed by the compatibility of relevant saddle points with the Witten criterion.

Session Chair : Sanved Kolekar