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THE QUANTUM SPACETIME SEMINAR SERIES
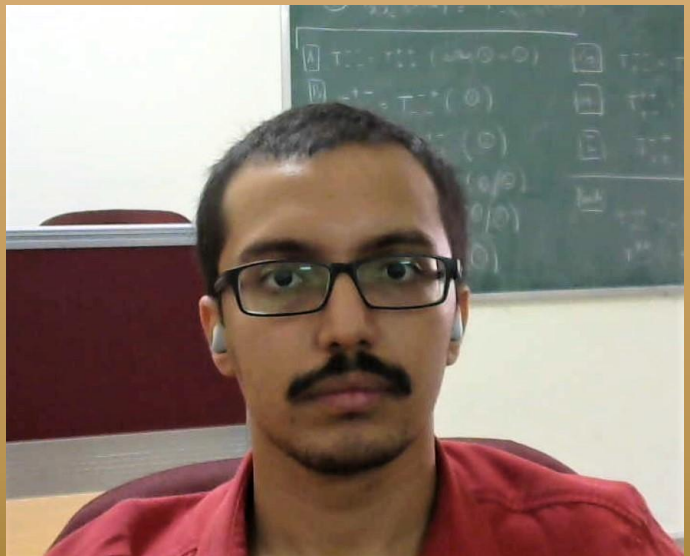
Quantum field theory and the Bieberbach conjecture
(Zoom Seminar)

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(IISC)

Date: August 9, 2021

Time: 11.00 am IST

Zoom link shall be shared separately

Recently, a study into an intriguing connection between the celebrated Bieberbach conjecture (de Branges' theorem) from the geometric function theory and non-perturbative aspects of scattering amplitude was initiated. In this talk, I will show how dispersion relation, crossing-symmetry and unitarity allows one to derive several inequalities pertaining to scattering amplitudes, analogous to those which arise in the discussions of the Bieberbach conjecture. New and strong inequalities on the ratio of certain Wilson coefficients can be derived using this connection. Further, two-sided bounds on the magnitude of the scattering amplitude can also be obtained in the above context. I also briefly discuss how Szego's theorem corresponds to the check of univalence in EFT.

Quantum field theory and the Bieberbach conjecture, SciPost Phys. 11 (2021) 002

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