

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE
2A & 2B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

Seminar Notice

Org. by
School of Physical Sciences

Title:	New lessons for QFTs from CFTs
Speaker:	Aninda Sinha, Indian Institute of Science, Bangalore
Date:	December 27, 2019 (Friday)
Time:	16:00 Hours
Venue:	Physics Seminar Room (C406), 3rd Floor, Centenary Building, IACS
Abstract:	In the last few years, new techniques have been developed to understand certain problems in quantum field theories (QFTs) at fixed points. I will describe the program of the conformal bootstrap which is a nonperturbative method to constrain conformal quantum field theories (CFTs). This enables us, amongst other things, to calculate the critical exponents in the epsilon expansion for the Wilson-Fisher fixed point (which describes the critical point of water for example), bypassing the machinery of Feynman diagrams, in a manifestly finite manner. This method also enables us to calculate the so-called OPE coefficients which are not available using the diagrammatic approach. Finally, I will describe a recent work which enables us to infer the high energy limit of hadron scattering using results from CFTs, shedding new light on the so-called Froissart bounds in particle physics. Amongst other things, this leads to the conclusion that there are no interacting CFTs in $d > 6$ which are consistent with flat space unitarity bounds.

All are cordially invited to attend the seminar