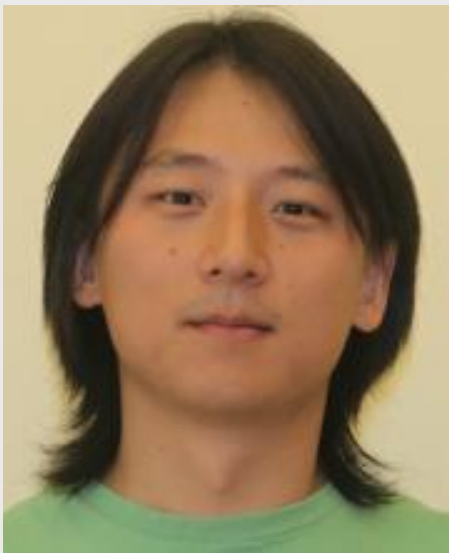




Department of
Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

2D superconformal bootstrap: Part I



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(Harvard University)

Date: January 11, 2016

Time: 11.30 am

Venue: A-304, TIFR

In this talk we will tie together several topics: (1) constraining the low energy dynamics of supersymmetric theories through scattering amplitudes (2) double scaled little string theory (3) the conformal bootstrap. We will begin by investigating superamplitudes in maximal and half-maximal supergravity theories, resulting in certain supersymmetry non-normalization theorems on the derivative expansion of the quantum effective action of type II string theory compactified on the $K3$ surface. This leads to an exact result on correlation functions in the 2D CFT described by the nonlinear sigma model on $K3$ surface (the $K3$ CFT). We then turn to correlators of BPS operators in the 2D $N=2$ cigar coset CFT, closely related to massless amplitudes of double scaled little string theory. This leads to an exact relation between BPS superconformal blocks in two dimensions and the bosonic Virasoro conformal blocks. These ingredients will be fed into the numerical bootstrap program, applied to 2D (4,4) superconformal theories, particularly the $K3$ CFT. Details of the numerical bootstrap will be discussed in part II.

(Duration and Location are subject to irreducible jitter)