LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS (LEPP)

Theory Seminar

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A crossing-symmetric OPE inversion formula

I will discuss a new Lorentzian OPE inversion formula for the principal series of SL(2,R). Unlike the standard Lorentzian inversion formula in higher D, the new formula makes crossing symmetry manifest. In particular, inverting a single conformal block in the crossed channel returns the coefficient function of the crossing-symmetric sum of Witten exchange diagrams in AdS_2, including the direct-channel exchange. In this way, the inversion formula leads to a derivation of the Polyakov-Mellin bootstrap for SL(2,R). Furthermore, the formula directly gives rise to analytic extremal functionals which have appeared in recent literature, unifying them to a single object. Time allowing, I will explain how one can use the resulting functionals to study phi^4 theory in AdS_2 up to two loops, and prove universal properties of the spectrum at large scaling dimension.

Wednesday, Feb. 20, 2019

2pm

401 Physical Sciences Building