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String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

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Bootstrapping Multiple Scattering Amplitudes

The S-matrix Bootstrap approach can be used to derive bounds on the coupling constants on any Lorentz invariant quantum field theory due to analyticity, crossing symmetry and unitarity. In our previous work, constraints were derived by studying only the 2-to-2 scattering of the lightest particle of the theory. I will describe the extension of our techniques in order to include constraints stemming from 2-to-2 processes which involve the next-to-lightest particle of the theory. We test these techniques on a family of 1+1 dimensional theories inspired by (and including) the three state Potts field theory. We find that the inclusion of more 2-to-2 amplitudes significantly reduces the single amplitude bounds.

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