RESEARCH TRAINING GROUP
Models of Gravity

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On non-perturbative tree-level unitarity in gravitational scattering

Abstract

The perturbative non-unitarity of scattering processes involving gravitons has given rise to many ideas about extensions of gravity such as string theory, for example. Here we revisit this problem focussing on a proper definition of back-reacted "asymptotic states". Expanding on ideas of 't Hooft and others I will describe a manifestly unitary scattering amplitude for trans-Planckian scattering in the Regge limit within GR alone.