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Tim Adamo - Fun with strong-field scattering

Thursday 17 August 2023 14:00 (50 minutes)

Scattering amplitudes encode the on-shell dynamics of quantum field theories and underpin many physical observables ranging from decay rates to scattering angles. Over the last 30 years, there has been significant progress in developing new methods to calculate scattering amplitudes in perturbation theory around a trivial vacuum, but comparatively little has been learned about scattering in the presence of non-trivial, or 'strong,' background fields. These arise in many important physical scenarios, from lasers to heavy ion collisions to black holes and neutron stars. I will try to convince you that strong-field scattering amplitudes are a playground where perturbative and non-perturbative phenomena meet, presenting important challenges as well as exciting opportunities for theorists.