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String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

Jeudi 16 Novembre 2023, 11:45

Ali Seraj

Queen Mary

Fracton Infrared Triangle

In theories with conserved dipole moment, isolated charged particles (fractons) are immobile, but dipoles can move. We couple these dipoles to the fracton gauge theory and analyze the universal infrared structure. This uncovers an observable double-kick memory effect which we relate to a novel dipole soft theorem. Together with their asymptotic symmetries, this constitutes the first realization of an infrared triangle beyond Lorentz symmetry. This demonstrates the robustness of these IR structures and paves the way for their investigation in condensed matter systems and beyond.

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