C6 Scattering Amplitudes: Symmetries and Interrelations in Maximal Supergravity and Yang-Mills Theory

Scattering amplitudes are one of the most important class of observables in quantum field theories, as they provide direct contact to collider experiments. They are by construction invariant under Poincare symmetry. In gauge and gravity theory with maximal supersymmetry these symmetries are enhanced and in some instances even to infinte dimensional symmetry groups. In this project we will study the implications of such infinite dimensional symmetry groups for the construction of loop-level scattering amplitudes and will investigate further the interrelations between gauge and gravity amplitudes.