Abstract

I will present a theory of three-dimensional (anti) de Sitter gravity carrying Chan-Paton color charges. The theory is described in Chern-Simons formulation by the gauge algebra (2⊕2)⊗—(N), obtaining a color-decorated version of interacting spin-one and spin-two fields. I also describe the theory in metric formulation and show that, among N2 massless spin-two fields, only the singlet one plays the role of metric graviton whereas the rest behave as *colored spinning matter* that strongly interacts at large N. Remarkably, this colored spinning matter acts as Higgs field and generates a non-trivial potential of staircase shape. At each extremum labelled by k=0,…,[N−12], the (N) color gauge symmetry is spontaneously broken down to (N−k)⊗(k) and provides different (A)dS backgrounds with k-dependent cosmological constant. When this symmetry breaking takes place, the spin-two Goldstone modes combine with (or are eaten by) the spin-one gauge fields to become partially-massless spin-two fields. We discuss various aspects of this theory and highlight physical implications.