

Abstract

We will present some actions suitable to describe coincident gravitons in M and Type II theories. As a non-trivial check of the validity of these actions we will see that they can be used to describe the known giant graviton configurations in $AdS_m x S^n$ in terms of gravitons expanding by dielectric effect into various fuzzy manifolds. We will see that the Berenstein, Maldacena, Nastase matrix model in the maximally supersymmetric pp-wave background of M-theory is obtained from the action for coincident M-theory gravitons, but that this action predicts as well an extra coupling to the 6-form potential which supports the so far elusive fuzzy 5-sphere vacuum solution. We will also derive Type II matrix models in pp-wave backgrounds from the actions for Type II gravitons and discuss their relation with other derivations in the literature.