Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

"Supergravité, théorie des cordes et théorie M"

Jeudi 28 Mars 2024, 11:45

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Mons University

Higher spin physics

I will review two aspects in which higher spin fields play an important role.

Firstly, higher spin states seem to be inevitable in models of quantum gravity, e.g. within AdS/CFT correspondence and in string theory. One of the simplest examples relates theories with massless higher-spin fields, known as higher spin gravities, to (Chern-Simons) vector models that describe many second order phase transitions in the real world and were conjectured to exhibit a number of dualities, including the 3d bosonization duality. I will review the progress towards constructing exact models of AdS/CFT along these lines and how higher spin symmetry is manifested on the CFT side and can be used to prove the 3d bosonization duality.

Secondly, any massive and rotating compact object, e.g. a black hole, can be modelled by a higher spin particle. I will review the recent progress in constructing theories with massive higher spin fields with applications to the description of gravitational wave radiation from compact binaries.

Institut Henri Poincaré, salle 314, 3ème étage

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