



Contribution ID: 71

Type: **not specified**

## **Coupling to matter in degenerate scalar-tensor theories**

*Friday 11 December 2020 11:40 (20 minutes)*

Degenerate scalar-tensor theories of gravity extend general relativity by a single degree of freedom, despite their equations of motion being higher than second order, a virtue made possible by the existence of an additional constraint that removes the would-be ghost. This constraint can however be obstructed by matter fields, even when minimally coupled to the metric. In this talk I will present this issue in detail, explaining through some illustrative examples the precise ways in which the extra degree of freedom may reappear. I will next turn to the more physically relevant case of fermionic matter, and show that spin-1/2 fermions evade these issues and can thus be consistently coupled to degenerate theories of scalar-tensor gravity.

**Author:** GARCIA-SAENZ, Sebastian (Imperial College London)

**Presenter:** GARCIA-SAENZ, Sebastian (Imperial College London)

**Session Classification:** Contributed talks