



Contribution ID: **140**

Type: **not specified**

Waves in Scalar-Tensor Theories

Tuesday 25 April 2017 15:55 (15 minutes)

Many viable Scalar-Tensor theories for modified gravity introduce scalar fields that are coupled to matter. The equations that describe the evolution of the scalar fields are field equations similar to the Klein-Gordon equation, with additional source terms depending on the specific model. The usual way to solve this equation has been to apply the quasi-static approximation, neglecting the time derivatives and solve it like a Poisson equation. We have developed a method to integrate the full field equation numerically, allowing for new phenomena not seen when using the quasi-static approximation.

We present results from our latest research, studying waves arising when solving the full field equations in spherical symmetry. We present results from the Symmetron model and the Disformally coupled model, where the propagation of waves has surprising effects which can lead to further constraints on the models, and to new observables.

Author: HAGALA, Robert

Presenter: HAGALA, Robert

Session Classification: Afternoon session