



Contribution ID: 3

Type: **Poster contribution**

Characterising exotic matter driving wormhole

Friday, 21 April 2017 17:00 (1 hour)

We develop an iterative approach to span the whole set of exotic matter models able to drive a traversable wormhole. The method, based on a Taylor expansion of metric and stress-energy tensor components in a neighbourhood of the wormhole throat, reduces the Einstein equation to an infinite set of algebraic conditions, which can be satisfied order by order. The approach easily allows the implementation of further conditions linking the stress-energy tensor components among each other, like symmetry conditions or equations of state. The method is then applied to some relevant examples of exotic matter characterised by a constant energy density and that also show an isotropic behaviour in the stress-energy tensor or obeying to a quintessence-like equation of state.

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Session Classification: Archivio Poster

Track Classification: Sessione Cosmologia e Astroparticelle