



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 4197

Type: **Poster (Non-Student) / Affiche (Non-étudiant(e))**

(POS-71) Scalar-tensor realizations of the ugly duckling of the Hawking-Ellis classification of stress-energy tensors

Tuesday 28 May 2024 18:06 (2 minutes)

In General Relativity, the “ugly duckling” of the Segre-Plebanski-Hawking-Ellis classification of stress-energy tensors (type III) is very difficult (and was believed to be impossible) to realise. Effective stress-energy tensors in alternative gravity cover a wider range of possibilities. We report a class of type III realisations in first-generation scalar-tensor and in Horndeski gravity, together with their physical interpretation. The ugly duckling may be a freak of nature of limited importance but it is not physically impossible.

[Based on N. Banerjee, V. Faraoni, R. Vanderwee, A. Giusti 2023, Phys. Rev. D 108, 084047 (arXiv:2307.13846)]

Keyword-1

Type III stress energy tensor

Keyword-2

General Relativity

Keyword-3

Horndeski gravity

Primary author: FARAONI, Valerio

Presenter: FARAONI, Valerio

Session Classification: DTP Poster Session & Student Poster Competition (11) | Session d'affiches DPT et concours d'affiches étudiantes (11)

Track Classification: Technical Sessions / Sessions techniques: Theoretical Physics / Physique théorique (DTP-DPT)