

What is (not) wrong with scalar gravity?

Giulini, Domenico (2006) What is (not) wrong with scalar gravity?.

Full text available as:

[PDF](#) - Requires a viewer, such as [Adobe Acrobat Reader](#) or other PDF viewer.

Abstract

On his way to General Relativity (GR) Einstein gave several arguments as to why a special relativistic theory of gravity based on a massless scalar field could be ruled out merely on grounds of theoretical considerations. We re-investigate his two main arguments, which relate to energy conservation and some form of the principle of the universality of free fall. We find that such a theory-based a priori abandonment not to be justified. Rather, the theory seems formally perfectly viable, though in clear contradiction with (later) experiments.

Keywords: General Relativity, Special Relativity, Field Theory

[Specific Sciences: Physics: Classical Physics](#)

Subjects: [Specific Sciences: Physics: Relativity Theory](#)

[General Issues: History of Science Case Studies](#)

ID Code: 3069

Deposited By: [Giulini, Domenico](#)

Deposited On: 30 November 2006