Online Conference on
Gravitational Physics and Astronomy
4-9 December 2022
https://indico.cern.ch/e/GPA2022
https://www.mdpi.com/journal/physics/special_issues/SPGPCC

Contribution ID: **39** Contribution code: **GPA22-05** Type: **not specified**

Covariant Hamiltonians for F(R) Gravity

Monday 5 December 2022 12:00 (30 minutes)

The conventional Hamiltonian theory fails to provide covariant Hamiltonian description of relativistic physics. To achieve covariant Hamiltoninan description, the covariant Hamiltonian theory also called Weyl-de Donder theory can be used. With its help, we have shown, that covariant Hamiltonian can be found for F(R) gravity.
F(R) gravity is a modification of General Relativity, where scalar curvature in the Lagrangian is replaced with an unspecified function F(R) of scalar curvature.
F(R) gravity can be formulated in Jordan frame and using the Weyl transformation also in Einstein frame. For both frames, the covariant Hamiltonians can be formulated and also it can be demonstrated that they are bound with canonical transformation.

Primary authors: MATOUŠ, Bohuslav (Masaryk University, Brno, Czechia); Dr KLUSOŇ, Josef (Masaryk University)

Presenter: MATOUŠ, Bohuslav (Masaryk University, Brno, Czechia)