universität
wien

E I N L A D U N G

im Rahmen des Seminars für Mathematische Physik
(Joint TU/UV Theory Seminar)

zum Vortrag

von

Francesco Bajardi

Scuola Superiore Meridionale (SSM), Napoli

über

„Modifying General Relativity using Topological Terms"

Abstract:
Despite the success and the formal elegance, general relativity suffers from shortcomings
at any scale of energy. For this reason, several alternatives have been proposed over the years,
with the aim to address issues provided by Einstein's gravity. Within the plethora of modified
theories of gravity, particular interest is gained by modifications including topological
invariants, such as the Gauss-Bonnet term. Extending the gravitational action with the
Gauss-Bonnet invariant leads to interesting dynamics in cosmological and spherically
symmetric backgrounds. Specifically, the early and late-time Universe bahaviours can be
predicted without invoking any Dark Energy, which is thus mimicked by geometric
contributions. Moreover, considering the Gauss-Bonnet term into the action can settle
theoretical issues, currently faced by General Relativity.
After selecting the form of the action, the gravitational field equations can yield analytic
solutions whose free parameters can be constrained by experiments and observations.
Specifically, the starting model can be selected by the so called "Noether Symmetry
Approach", a selection criterion aimed at finding easily-handled models containing
symmetries.
The resulting conserved quantities can be used to reduce the minisuperspace dimension and
find out exact solutions.
In this talk, different modifications of General Relativity including the Gauss-Bonnet term are
discussed, such as scalar-tensor models, non-local models, extended and teleparallel models.

Zeit: Dienstag, **20.06.2023, 14.00 h**
Ort: TU - Sem.R. DA gruen 05 (Freihaus, TU Wien, Wiedner Hauptstrasse 8

gez.: S. Fredenhagen, D. Grumiller, E. Battista, R. Ruzziconi