RTG Models of Gravity Colloquium

Date:	06.11.2019
Time:	10:30 - 17:30
Location:	University of Oldenburg Room A14-1-111

Program

10:30 - 11:30   Students' Seminar: **Christian Hoffmann (**Oldenburg, Germany)
"Solitons in gravity and non-linear systems"

11:30 - 12:00   Discussion and Coffee

12:00- 12:30   Journals' Club: **Sarah Kahlen** (Oldenburg, Germany)
"Einstein-Maxwell-scalar black holes:
classes of solutions, dyons and extremality"

12:30 - 14:00   Lunch and *board meeting*

14:00 - 15:00   Talk 1: **Ahmad Sheykhi** (Shiraz, Iran / Oldenburg, Germany)
"Origin of MOND Theory"

15:00 - 15:30   Discussion and Coffee

15:30 - 16:30   Talk 2: **Sravan Kumar** (Groningen, Netherlands)
"tba "

16:30 - 17:30   Discussion and Coffee

16:45 - 17:30   Women's assembly

18:00   Dinner

Abstracts

Talk 1: **Ahmad Sheykhi** (Shiraz, Iran / Oldenburg, Germany)

"Origin of MOND Theory"

We address the origin of the Modified Newtonian Dynamics (MOND) theory by adopting the viewpoint that gravity is not a fundamental force and instead it can be regarded as the entropic force. By modifying the area law of entropy, we also find the corrections to the Newton's law of gravity at small distances.

Talk 2: **Sravan Kumar** (Groningen, Netherlands)

"tba"

tba

Journals' Club: **Sarah Kahlen** (Oldenburg, Germany)

"Einstein-Maxwell-scalar black holes: classes of solutions, dyons and extremality"

Spherical black hole (BH) solutions in Einstein-Maxwell-scalar (EMS) models wherein the scalar field is non-minimally coupled to the Maxwell invariant by some coupling function are discussed. A classification for these models into two classes is suggested, based on the properties of the coupling function. These allow, or not, the Reissner-Nordström (RN) BH solution of electrovacuum to solve a given model. The two classes lead to dilatonic (with RN being no solution) and scalarized (with RN being a solution) BHs, whose features are presented. It is also shown that electrically and magnetically charged BHs, called dyons, can have a smooth extremal limit in the scalarized case, but not in the purely electric or magnetic case. The finding that both charges are necessary for extremal solutions to exist can be explained by using the entropy function formalism.