CARL VON OSSIETZKY universität OLDENBURG
Institut für PHYSIK

PHYSICAL COLLOQUIUM

INVITATION

Monday, 19.10.2020, 4.15 p.m.,

speaks

Manuel Hohmann,

University of Tartu, Institute of Physics,

Laboratory of Theoretical Physics, Tartu, Estonia

about

"The geometric foundation of gravity"

One of Einstein's greatest achievements, which he realized in his general theory of relativity, was the interpretation of the gravitational interaction as the geometry of spacetime. In this theory, spacetime appears as being curved, and gravity is understood as the curvature of spacetime. However, this is not the only possibility to describe the geometry of spacetime, and hence the gravitational interaction. Already Einstein found an alternative to curvature for describing spacetime geometry and hence also gravity, namely torsion, which forms the basis of teleparallel geometry. The third alternative, known as nonmetricity, was studied only since the second half of the previous century. Despite the equivalence of these three geometries for the description of general relativity, their mathematical description, and also their intuitive geometric interpretation are rather different. As a consequence, also modified gravity theories are different, depending on which geometry is used. This offers the possibility to address open problems in gravity theory from a number of different perspectives. The talk gives an overview and intuitive description of these different geometries, and the formulations of modified gravity theories based on these geometries.

All interested persons are cordially invited.

Sgd. Prof. Dr. Jutta Kunz