



Contribution ID: 572

Type: **Talk in the parallel session**

Kundt spacetimes in the Einstein-Gauss-Bonnet theory

Friday, 9 July 2021 06:55 (25 minutes)

Based on our recent results we present the complete class of vacuum solutions in the Einstein–Gauss–Bonnet gravity which admit non-expanding, shear-free and twist-free null geodesic congruence and thus form the Kundt family of geometries. We explicitly derive the field equations and classify their solutions into three distinct subfamilies. Algebraic structure of the curvature tensors is determined and using the corresponding scalars entering the invariant form of geodesic deviation equation we discuss the specific local physical properties of the gravitational field constrained by the EGB theory. Moreover, we analyse various interesting subclasses of such vacuum solutions, namely the Ricci type III spacetimes, all geometries with constant-curvature transverse space, and the whole pp -wave class admitting a covariantly constant null vector field.

Primary author: SVARC, Robert (Charles University)

Co-authors: Prof. PODOLSKY, Jiri (Charles University); Dr HRUSKA, Ondrej (Charles University)

Presenter: SVARC, Robert (Charles University)

Session Classification: Exact Solutions in Four and Higher Dimensions

Track Classification: Exact Solutions: Exact Solutions in Four and Higher Dimensions