



Contribution ID: 41

Type: **not specified**

Cosmological solutions in Einstein-Gauss-Bonnet gravity with static curved extra dimensions

Monday, 11 September 2023 17:00 (20 minutes)

In this talk we perform a systematic investigation of all possible solutions with static compact extra dimensions and expanding three-dimensional subspace. We will consider extra-dimensional subspace to be constant-curvature manifold with both signs of spatial curvature. We provide a scheme how to build solutions in all possible number of extra dimensions and perform stability analysis for the solutions found. Our study suggests that the solutions with negative spatial curvature of extra dimensions are always stable while those with positive curvature are stable for a narrow range of the parameters and the width of this range shrinks with growth of the number of extra dimensions. Another interesting feature which distinguish cases with positive and negative curvatures is that the latter do not coexist with maximally-symmetric solutions leading to “geometric frustration” while the former could.

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Session Classification: Parallel Session A