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Stable exponential cosmological solutions with zero variation of G in the Einstein–Gauss–Bonnet model with a Λ–term

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A D-dimensional gravitational model with a Gauss-Bonnet term and the cosmological term Λ is considered. By assuming diagonal cosmological metrics, we find, for certain fine-tuned Λ, a class of solutions with exponential time dependence of two scale factors, governed by two Hubble-like parameters $H > 0$ and $h < 0$, corresponding to factor spaces of dimensions $m > 3$ and $l > 1$, respectively, with $(m, l) \neq (6, 6), (7, 4), (9, 3)$ and $D = 1 + m + l$. Any of these solutions describes an exponential expansion of 3-dimensional subspace with Hubble parameter H and zero variation of the effective gravitational constant G. We prove the stability of these solutions in a class of cosmological solutions with diagonal metrics. This result is generalized to the case of 3 factor spaces.

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