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On stable exponential cosmological solutions with three different Hubble-like parameters in EGB model with a Λ-term

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We consider a D-dimensional Einstein-Gauss-Bonnet model with a cosmological term Λ and two non-zero constants: α_1 and α_2. We restrict the metrics to be diagonal ones and study a class of solutions with exponential time dependence of three scale factors, governed by three non-coinciding Hubble-like parameters: $H \neq 0$, h_1 and h_2, obeying to $mH + k_1h_1 + k_2h_2 \neq 0$ and corresponding to factor spaces of dimensions $m > 1$, $k_1 > 1$ and $k_2 > 1$, respectively ($D = 1 + m + k_1 + k_2$). We analyse two cases: i) $m < k_1 < k_2$ and ii) $1 < k_1 = k_2 = k$, $k \neq m$. We show that in both cases the solutions exist if $\alpha = \alpha_2/\alpha_1 > 0$ and $\alpha\Lambda > 0$ obeys certain restrictions, e.g. upper and lower bounds. In case ii) explicit relations for exact solutions are found. In both cases the subclasses of stable and non-stable solutions are singled out. For $m > 2$ the case i) contains a subclass of solutions describing an exponential expansion of 3-dimensional subspace with Hubble parameter $H > 0$ and zero variation of the effective gravitational constant G.

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