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$d = 4$ **as the critical dimensionality of asymptotically safe interactions**[1] MARC SCHIFFER, Heidelberg University, ASTRID EICHHORN, University of Southern Denmark and Heidelberg University — We explore the question why our universe is four dimensional from an asymptotically safe vantage point. We find hints that asymptotically safe quantum fluctuations of gravity can only solve the $U(1)$ Landau-pole problem in the Standard Model in four dimensions. This could single out the observed dimensionality of the universe as the critical dimensionality of asymptotically safe interactions.

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Marc Schiffer
Heidelberg University

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