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Is there a Gauss-Bonnet gravity in four dimensions?

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We comment on the recently introduced Gauss-Bonnet gravity in four dimensions. We argue that although the naive D->4 limit of the Gauss-Bonnet gravity does not work, a well-defined theory is obtained by generalizing a conformal trick employed by Mann and Ross to obtain a limit of the Einstein gravity in D=2 dimensions. This yields a scalar-tensor theory of the Horndeski type that can also be obtained by dimensional reduction methods. Some properties and solutions of this theory in four and three dimensions will be discussed.

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