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Imperfect Dark Energy of Kinetic Gravity Braiding

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In this talk I will discuss a new class of cosmological scalar fields. Similarly to gravity, these theories are described by actions linearly depending on second derivatives. The latter can not be excluded without breaking the generally covariant formulation of the action principle. Despite the presence of these second derivatives the equations of motion are of the second order. Hence there are no new pathological degrees of freedom. Because of this structure of the theory the scalar field kinetically mixes with the metric- the phenomenon we have called Kinetic Gravity Braiding.

These theories have rather unusual cosmological dynamics which may be useful to model Dark Energy and Inflation.

I will discuss an equivalent hydrodynamical formulation of these theories, stability and causality for the fluid like configurations and cosmological applications.

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