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A Conformal Approach to Carroll Gravity

Wednesday 30 April 2025 15:30 (30 minutes)

In this talk, I will outline how to take the first step in the conformal program for constructing general matter couplings to Carroll gravity. In particular, I will show how a (non-conformal version of) electric/magnetic Carroll gravity arises from gauge-fixing a theory of a single massless electric/magnetic scalar coupled to conformal Carroll gravity with isotropic dilatations. Special attention will be paid to the way intrinsic torsion tensors occur in the full Carroll transformation rules. These results form a convenient starting point for constructing general matter couplings to Carroll gravity. Towards the end of the talk, I will argue that, surprisingly, the relation between dynamical matter and gravity, that forms the basis of the conformal program, does not work in the usual fashion in the Galilei case.

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