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Metric-Affine Chern-Simons Modified Gravity (a first look)

Thursday 17 March 2022 10:00 (1h 30m)

Abstract: Modifying GR by means of a Chern-Simons term coupled to a scalar field offers an interesting opportunity to explore parity violations in the gravitational sector. As usual, the original representation of this theory appeared in the metric formalism, though there are good reasons to reconsider it within a metric-affine approach. By doing so, one may improve the original action in order to make it projectively invariant. Though the connection equation is hard to tackle, we manage to obtain an approximate solution around a Schwarzschild background, which allows us to explore small perturbations and quasi normal modes. We compare our findings with those obtained in the metric formulation and in GR, finding that the metric-affine version presents certain features that could facilitate their detectability via gravitational waves observations.

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