

Three-dimensional Newtonian gravity with cosmological constant and torsion

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Resumen

In this work we present an alternative cosmological extension of the three-dimensional extended Newtonian Chern-Simons gravity [1] by switching on the torsion. The theory is obtained as a non-relativistic limit of an enhancement and U(1)-enlargement of the so-called teleparallel algebra [2] and can be seen as the teleparallel analogue of the Newtonian gravity theory. The infinite-dimensional extension of our result is also explored through the Lie algebra expansion method [3] applied for teleparallel algebra using an infinite semigroup. An infinite-dimensional torsional Galilean gravity model [4] is presented which in the vanishing cosmological constant limit reproduces the infinite-dimensional extension of the Galilean gravity theory. The presented theory is characterized by a non-vanishing spatial torsion, in which the cosmological constant can be interpreted as a source for the torsion.

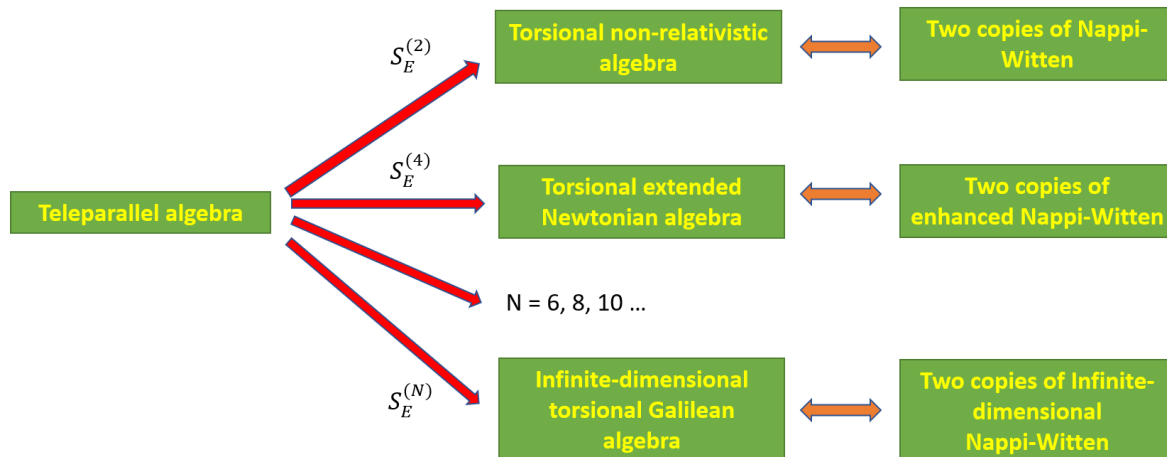


Figure 1: Expansions of teleparallel algebra and its relations with Nappi-Witten algebra

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