

SEMINARIO

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The question of mass in (Anti-) de Sitter space-times and related considerations on Dark Matter

Abstract: The existence of a non-zero cosmological constant Λ gives rise to controversial interpretations. Is Λ a universal constant fixing the geometry of an empty universe, as fundamental as the Planck constant or the speed of light in the vacuum? Is it instead something emerging from a perturbative calculus performed on the metric solution of the Einstein equation and to which it might be given a material status of (dark or bright) "energy"? Since a physical quantity like mass originates in a Minkowskian conservation law, we proceed with a group theoretical interpretation of this relation in terms of the two possible Λ -deformations of the Poincaré group with maximal symmetry, namely the de Sitter and Anti de Sitter groups. We use the so-called Garidi mass in order to make clear the asymptotic relations between Minkowskian masses m and their possible dS/AdS counterparts. A resulting conjecture on the appearance of Dark Matter in early period of universe will be presented.

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