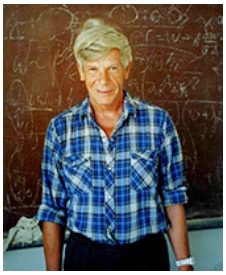

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Anti-de Sitter-Beltrami spacetime in nonrelativistic limit

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In the last decade, de Sitter (dS) and Anti-de Sitter (AdS) spacetimes have generated a lot of interest. This led to the creation of a new kinds of Special Relativity (SR), the so-called dS-SR and AdS-SR: relativity with dS(AdS) radius R. The existence of inertial frames of reference and inertial coordinate systems are the keystones of the SR. It can be proved by direct calculations that the Beltrami coordinates in dS(AdS) are inertial, as are the Cartesian coordinates in the Minkowski space-time The Beltrami coordinates are defined by the ratio of two homogeneous coordinates $x^\mu = RX^\mu/X^5$ or $x^\mu = RX^\mu/X^{-1}$ when the dS(AdS) spacetimes are embedded in a homogeneous spacetime spanned by X^A, $A = \{0, 1, 2, 3, 5\}$ or $A = \{-1, 0, 1, 2, 3\}$.

The AdS theory differs from the dS theory in that in AdS, in addition to the standard limit $R \to \infty$ leading to the SR theory, there is a possible limit $c \to \infty$ leading to a theory equivalent to the SR, but not containing the constant c. The corresponding spacetime was called R-spacetime.

The physics in R-spacetime has been considered in sufficient detail earlier. In this report, we will turn to general relativity (GR) in R-spacetime. First, an analogue of the Schwarzschild metric in R-space will be constructed. With spacetime localization, this metric does not differ from the standard Schwarzschild metric in Minkowski space, but globally these are completely different metrics, since in one of them the speed of light appears only as a scale factor. Next, we will study the various characteristics of black holes in comparison with the Minkowski spacetime

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