

ABOUT THE SYMMETRY OF GENERAL RELATIVITY

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Abstract. Generalized deformed gauge groups are used for investigation of symmetry of general relativity (GR). GR is formulated in generalized reference frames, which are represented by affine frames. The general principle of relativity is extended to the requirement of invariance of the theory with respect to the group GL^g of local linear transformations of affine frames. GR is interpreted as the gauge theory of the gauge group of translations T_M^g . The groups GL^g and T_M^g are united into the group S_M^g , which is their semidirect product and is the complete symmetry group of GR. By GL^g -gauge fixing one can obtain: Einstein gravity, GR in an orthogonal frame or teleparallel equivalent of GR, dilaton gravity, unimodular gravity, etc.

MSC: 70S10, 83C22, 83C40

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