

DESCRIPTION FOR THE GENERAL PUBLIC (IN ENGLISH)

Title: Conformal symmetries of dynamical systems

Space-time symmetries play a prominent role in physics. They express, on the formal level, the relativity principle, both in nonrelativistic (Galilean principle) as well as relativistic (Einstein principle) versions. In many cases they can be supplied with the assumption of scale independence (in less or more general sense). The latter is described by conformal symmetries. The aim of the proposed research is to extend the knowledge concerning the properties of dynamical systems exhibiting conformal symmetry, both in nonrelativistic and relativistic regimes. In particular, we plan to investigate the structure of nonrelativistic holographic principle which, according to its name, should enable us to investigate complicated physical phenomena by “projecting” them onto the boundary of the domain they take place. We plan also to analyse the conformal symmetry of the phenomena concerning halfinteger spin particles of high energy.