## The 5th international conference on particle physics and astrophysics



Contribution ID : 718

Type : Oral talk

## Nonstationary configurations of a massless scalar field

Thursday, 8 October 2020 18:35 (20)

Ju.V. Tchemarina, I.M. Potashov, I.A. Shapovalova, and A.N. Tsirulev

Faculty of Mathematics, Tver State University, 35 Sadovyi, Tver, Russia, 170002

We study nonstationary spherically symmetric solutions of the Einstein-scalar field system with a massless scalar field minimally coupled to gravity. We use a method for constructing nonstationary configurations of a spherically symmetric scalar field, based on the separation of one invariant equation written in terms of the characteristic function. The behavior of this function makes it possible to interpret the solution as a black hole, wormhole, or naked singularity. Numerical and exact analytical nonstationary solutions are presented. Special attention is paid to the class of asymptotically flat solutions.

Primary author(s): Dr. TCHEMARINA, Julia (Tver State University)

**Co-author(s) :** POTASHOV, Ivan (Tver State University); Prof. TSIRULEV, Alexander; SHAPOVALOVA, Inna (Tver State University)

**Presenter(s):** Dr. TCHEMARINA, Julia (Tver State University)

Session Classification : Gravitation and Cosmology

Track Classification : Gravitation and cosmology