Contribution ID : **181** Type : **Oral talk**

Quasinormal modes in the field of a dyon-like dilatonic black hole corresponding to $A_1 + A_1$ Toda chain

Friday, 30 October 2026 10:00 (15)

We explore the quasinormal modes of a massless test scalar field in the gravitational background of a non-extremal dilatonic dyonic black hole. The dyon-like black hole solution is considered within a four-dimensional gravitational model that includes two scalar fields and two 2-forms. It is governed by two dilatonic coupling vectors \(\vec{\lambda}_s\) (with \(s=1,2\)) that satisfy \(\vec{\lambda}_1 = \vec{\lambda}_2 = \vec{\lambda}\) and \(\vec{\lambda}^2 = 1/2\). We derive and examine the quasinormal modes of a massless scalar test field in the eikonal limit. These modes are governed by the solution parameters $\mu > 0$, $P_1 > 0$, and $P_2 > 0$. In the two limiting scenarios – namely $P_1 = P_2 = 0$ and $P_1 = P_2 = P > 0$ – our results reduce exactly to the known (eikonal) quasinormal spectra for the Schwarzschild and Reissner-Nordström black holes, respectively. Numerical higher-order WKB analysis of quasinormal frequencies for two lower levels (for various values of parameters) is also presented.

Primary author(s) : Dr. IVASHCHUK, Vladimir (Rostest/RUDN)

Co-author(s) : Mr. KAYUMOV, Ulugbek (KazNU al-Farabi, Kazakhstan); Dr. BOLOKHOV, Sergey (RUDN); Dr. MALYBAYEV, Algis (KazNU); Dr. NURBAKOVA, Guliya (KazNU al-Farabi)

Presenter(s) : Dr. IVASHCHUK, Vladimir (Rostest/RUDN)

Session Classification : Gravitation and cosmology

Track Classification : Gravitation and cosmology