SCALAR-FIELD POTENTIAL DISTRIBUTION FOR A CLOSED "THICK" NULL STRING MOVING IN THE PLANE $z = 0$

O.P. Lelyakov, A.S. Karpenko, R.-D.O. Babadzhan

V.I. Vernadskyi Tavrida National University
(*4, Vernadskyi Ave., Simferopil 95700, Ukraine;*
e-mail: lelyakov@crimea.edu)

S u m m a r y

A general form for the scalar-field potential distribution has been proposed for a closed "thick" null string either collapsing or expanding in the plane $z = 0$. Conditions, under which the energy-momentum tensor components for a scalar field that contracts into a one-dimensional object (a circle with a varying radius) asymptotically coincide with those for a closed null string moving along the same trajectory, have been found.