

D'Alembert type travelling wave solution for a wave equations on finite interval with coupled initial boundary conditions

Songlin CHEN¹

¹Anhui University of Technology

April 30, 2021

Abstract

The problem of solving equations for a class of coupled wave equations with initial-boundary conditions is discussed by using the results for the problem with initial value in this paper. A coupled wave equations which defined in semi-infinite interval and finite interval are studied respectively, the d'Alembert type traveling wave solutions with finite closed form of the corresponding problems are obtained and the examples are given. This research generalize the corresponding results for single wave equation and .avoid the traditional Fourior series solution.

Hosted file

20210427mm(Songlin Chen).pdf available at <https://authorea.com/users/411122/articles/520264-d-alembert-type-travelling-wave-solution-for-a-wave-equations-on-finite-interval-with-coupled-initial-boundary-conditions>

Hosted file

20210427mm(Songlin Chen).pdf available at <https://authorea.com/users/411122/articles/520264-d-alembert-type-travelling-wave-solution-for-a-wave-equations-on-finite-interval-with-coupled-initial-boundary-conditions>

Hosted file

Fig. 1 y-variable with time at x=3.tiff available at <https://authorea.com/users/411122/articles/520264-d-alembert-type-travelling-wave-solution-for-a-wave-equations-on-finite-interval-with-coupled-initial-boundary-conditions>

Hosted file

Fig. 2 z-variable with time at x=3.tiff available at <https://authorea.com/users/411122/articles/520264-d-alembert-type-travelling-wave-solution-for-a-wave-equations-on-finite-interval-with-coupled-initial-boundary-conditions>

Hosted file

Fig. 3 y- figure .tiff available at <https://authorea.com/users/411122/articles/520264-d-alembert-type-travelling-wave-solution-for-a-wave-equations-on-finite-interval-with-coupled-initial-boundary-conditions>

Hosted file

Fig. 4 z- figure.tiff available at <https://authorea.com/users/411122/articles/520264-d-alembert-type-travelling-wave-solution-for-a-wave-equations-on-finite-interval-with-coupled-initial-boundary-conditions>

Hosted file

Fig. 5 y-variable with time .tiff available at <https://authorea.com/users/411122/articles/520264-d-alembert-type-travelling-wave-solution-for-a-wave-equations-on-finite-interval-with-coupled-initial-boundary-conditions>

Hosted file

Fig. 6 z-variable with time.tiff available at <https://authorea.com/users/411122/articles/520264-d-alembert-type-travelling-wave-solution-for-a-wave-equations-on-finite-interval-with-coupled-initial-boundary-conditions>

Hosted file

Fig. 7 y- figure.tiff available at <https://authorea.com/users/411122/articles/520264-d-alembert-type-travelling-wave-solution-for-a-wave-equations-on-finite-interval-with-coupled-initial-boundary-conditions>

Hosted file

Fig. 8 z- figure.tiff available at <https://authorea.com/users/411122/articles/520264-d-alembert-type-travelling-wave-solution-for-a-wave-equations-on-finite-interval-with-coupled-initial-boundary-conditions>