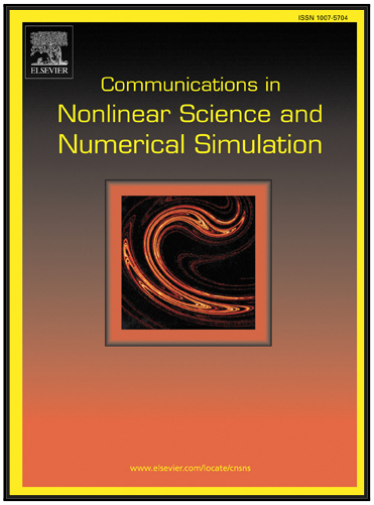

Analytical solutions for multi-term time-space coupling fractional delay partial differential equations with mixed boundary conditions

Xiao-Li Ding, Yao-Lin Jiang

PII: S1007-5704(18)30174-6
DOI: 10.1016/j.cnsns.2018.05.022
Reference: CNSNS 4539

To appear in: *Communications in Nonlinear Science and Numerical Simulation*

Received date: 16 October 2017
Revised date: 18 May 2018
Accepted date: 25 May 2018

Please cite this article as: Xiao-Li Ding, Yao-Lin Jiang, Analytical solutions for multi-term time-space coupling fractional delay partial differential equations with mixed boundary conditions, *Communications in Nonlinear Science and Numerical Simulation* (2018), doi: 10.1016/j.cnsns.2018.05.022

Highlights

- This paper provides the analytical solutions of coupling fractional delay partial differential equations with mixed boundary conditions on a finite domain.
- Integral transforms and method of reduction to integral equations are used to obtain the analytical solutions of multi-term time coupling delay fractional differential equations.
- The technique of spectral representation of the fractional Laplacian operator is used to convert the coupling fractional delay partial differential equations to the coupling multi-term time coupling fractional delay differential equations.
- By applying the obtained analytical solutions to the resulting multi-term time fractional delay differential equations, the desired analytical solutions of the coupling fractional delay partial differential equations are given.