Abstract

In this paper, a new numerical technique for solving the fractional order diffusion equation is introduced. This technique basically depends on the Non-Standard finite difference method (NSFD) and Chebyshev collocation method, where the fractional derivatives are described in terms of the Caputo sense. The Chebyshev collocation method with the (NSFD) method is used to convert the problem into a system of algebraic equations. These equations solved numerically using Newton's iteration method. The applicability, reliability, and efficiency of the presented technique are demonstrated through some given numerical examples.