Successive Approximation Methods for the Solution of the Fractional Euler-Lagrange Equation

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In this study a numerical scheme using the successive approximation method is proposed to solve the Fractional Euler-Lagrange equation. The left and right Riemann-Liouville derivatives are involved in this equation. After transforming this equation to an integral equation of a second kind, we discretize it by the successive approximations method.

In the final part, we apply our scheme to the fractional oscillator equation.

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