

# Numerical methods for distributed order differential equations

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In this paper we present and analyse a numerical method for the solution of a distributed order differential equation of the general form

$$\int_0^m \mathcal{A}(r, D_*^r u(t)) dr = f(t)$$

where the derivative  $D_*^r$  is taken to be a fractional derivative of Caputo type of order  $r$ . We give a convergence theory for our method and conclude with some numerical examples.

Keywords: Distributed order differential equation, multi-term fractional differential equation, numerical solution, convergence

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