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## Comparison of optimal control properties for linear fractional-order systems described by equations with different type of fractional derivative

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Linear time-invariant fractional-order systems with lumped parameters considered in several cases, which differ from each other by fractional derivative type in system dynamics equation. The Caputo, Riemann-Liouville and Hadamard derivatives used. Two kinds of optimal control problem are investigated: the problem of control with minimal norm and the problem of control with minimal time at given restriction on control norm. Admissible controls allowed to be the  $p$ -integrable functions ( $p > 1$ ) at half-interval. The optimal control problem studied by moment method. The correctness and solvability conditions for the corresponding moment problem are derived. For several special cases the optimal control problems stated are solved analytically. Some analogies pointed for results obtained with the results which are known for integer-order systems. Comparative analysis results represented for fractional-order systems describing by equations with Caputo-, Riemann-Liouville- and Hadamard-type derivatives.

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