

ON THE OSCILLATION OF A CLASS OF DAMPED FRACTIONAL  
DIFFERENTIAL EQUATIONS

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**Abstract**

Using Riccati type transformations, the authors establish some new oscillation criteria for the fractional differential equation

$$(D_{0+}^{1+\alpha}y)(t) + p(t)(D_{0+}^{\alpha}y)(t) + q(t)f(G(t)) = 0, \quad t > 0, \quad (1)$$

where  $D_{0+}^{\alpha}y$  is the Riemann-Liouville fractional derivative of order  $\alpha$  of  $y$ ,  $G(t) = \int_0^t (t-s)^{-\alpha} y(s) ds$  and  $\alpha \in (0, 1)$ . Examples are provided to illustrate the relevance of the results.

**Keywords:** Oscillatory solutions, fractional differential equation, integral averaging technique, Riccati transformation.

**References**

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