THE HARNACK INEQUALITY FOR THE RIEMANN–LIOUVILLE FRACTIONAL DERIVATION OPERATOR

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Abstract. In this note we establish the Harnack inequality for the Riemann-Liouville fractional derivation operator $\partial_t^\alpha$ of order $\alpha \in (0,1)$. Here the function under consideration is assumed to be globally nonnegative. We show that the Harnack inequality in general fails if this global positivity assumption is replaced by a local one. A Harnack estimate is also derived for nonnegative solutions of a class of nonhomogeneous fractional differential equations.


Keywords and phrases: Harnack inequality, fractional derivative, fractional differential equation.

REFERENCES