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Locating Regions of Complex Zeros of the Mittag-Leffler Function $\mathbf{E_{\alpha,\beta}(z)}$ for $\mathbf{2 < \alpha \leq 3}$ JOHN W. HANNEKEN, TRENTON R. ENSLEY, STEPHAN T. SPENCER, B. N. NARAHARI ACHAR, University of Memphis — The Mittag-Leffler function $E_{\alpha,\beta}(z)$, which is a generalization of the exponential function, arises frequently in the solutions of differential and integral equations of fractional order. Moreover, the zeros of $E_{\alpha,\beta}(z)$ for some values of α and β are the eigenvalues of fractional differential operators. Consequently, knowledge of the zeros and their distribution is of fundamental importance. This work focuses on the distribution of zeros in the region where the Mittag-Leffler function possesses an infinite number of real zeros and a finite number of complex zeros and is restricted to the range $2 < \alpha \leq 3$ and $\beta \leq 14$.

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