NEW UPPER BOUNDS FOR MATHIEU–TYPE SERIES

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ABSTRACT. The Mathieu's series $S(r)$ was considered firstly by É.L. Mathieu in 1890, its alternating variant $\widetilde{S}(r)$ has been recently introduced by Pogány *et al.* [Appl. Math. Comput. 173 (2006), 69–108], where various bounds have been established for $S, \widetilde{S}$. In this note we obtain new upper bounds over $S(r), \widetilde{S}(r)$ with the help of Hardy–Hilbert double integral inequality.

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