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Jonathan M. Borwein* (jborwein@cs.dal.ca), Faculty of Computer Science, Dalhousie University, 6050 University Avenue, Halifax, Nova Scotia B3H 1W5. *Effective Computation of Bessel Functions.*

Bessel functions are some of the most important functions in mathematical physics and the theory of special functions, and the ability to compute their values is equally important. The standard method of evaluating the Bessel functions has been to use an ascending series for small argument, and the asymptotic (but divergent) series for large argument. In this talk, we describe a new series that is geometrically convergent in the number of summands, with explicitly computable error estimates for the tails. (Received September 21, 2007)