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**Asymptotics for a generalization of Hermite polynomials.** (English) Zbl 1190.33010

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**Summary:** We consider a generalization of the classical Hermite polynomials by the addition of terms involving derivatives in the inner product. This type of generalization has been studied in the literature from the point of view of the algebraic properties. Thus, our aim is to study the asymptotics of this sequence of nonstandard orthogonal polynomials. In fact, we obtain Mehler-Heine type formulas for these polynomials and, as a consequence, we prove that there exists an acceleration of the convergence of the smallest positive zeros of these generalized Hermite polynomials towards the origin.

**MSC:**

**33C45** Orthogonal polynomials and functions of hypergeometric type (Jacobi, Laguerre, Hermite, Askey scheme, etc.)

Cited in **2** Reviews  
Cited in **4** Documents

**Keywords:**

orthogonal polynomials; Sobolev inner products; Borel measure; Mehler-Heine type asymptotics; asymptotics; Hermite polynomials; Mehler-Heine type formulas; Bessel functions

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