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**Mourad E. H. Ismail\*** (mourad.eh.ismail@gmail.com), Department of Mathematics,  
University of Central Florida, Orlando, FL 32828. *Analytic Properties of Complex Hermite  
Polynomials.*

We study the complex Hermite polynomials  $\{H_{m,n}(z, \bar{z})\}$  in some detail, establish operational formulas for them and prove a Kibble-Slepian type formula, which extends the Poisson kernel for these polynomials. Positivity of the associated kernels is discussed. We also give an infinite family of integral operators whose eigenfunctions are  $\{H_{m,n}(z, \bar{z})\}$ . Some inverse relations are also given. We give a two dimensional moment representation for  $H_{m,n}(z, \bar{z})$  and evaluate several related integrals. We also introduce bivariate Appell polynomials and prove that  $\{H_{m,n}(z, \bar{z})\}$  are the only bivariate orthogonal polynomials of Appell type. (Received January 22, 2014)