

On some entire characteristic functions

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ABSTRACT

We consider entire characteristic functions of order two which have only a finite number of zeros. We denote this class by E_2 . An entire function φ of order two is not necessarily a characteristic function. A sufficient condition was given by Lukacs (1967). We give a necessary and sufficient condition which ensures that φ is a characteristic function; this condition is expressed in terms of Hermite polynomials.

Next we consider some special case of functions belonging to E_2 , namely the characteristic functions corresponding to polynomial-normal distributions (PND), i.e. products of a non-negative polynomial and a normal density. PND distributions were considered by Evans and Swartz (1994). We consider the problem of composition and decomposition of PND. We show that the characteristic function of a PND has only PND factors.

References

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