On a complex sequence of vanishing moments

Abstract. In this talk, we show that the vanishing of all moments of the complex sequence {zj} implies that {zj} is identically zero, provided {zj} is in lp, $1 \leq p < \infty$. This proof is different from one given by Priestley [Proc. Amer. Math. Soc. 116 (1992) 437--444]. This shows an interesting connection of this problem with heat-type kernels.

Keywords: moments, heat-type kernels, Hermite polynomials

References:

[1] Andrew Lenard, A nonzero complex sequence with vanishing power sums, Proc. Amer. Math. Soc., 108 (1990) 951–953.
[2] W. M. Priestley, Complex sequences whose “moments” all vanish, Proc. Amer. Math. Soc., 116 (1992) 437–444.
[3] Sahoo, Manas R.; Satyanarayana, Engu; Sen, Abhrojyoti On a complex sequence of vanishing moments. J. Ramanujan Math. Soc. 34 (2019), no. 2, 185–190.