

1096-46-2045

P. Brändén and **M. Chasse*** (chasse@math.kth.se), Lindstedtsvägen 25, Mathematics Department, 100-44 Stockholm, Sweden. *Classification theorems for operators preserving zeros in a strip.*

A characterization is given for linear operators which preserve the set of univariate complex polynomials whose zeros lie in a closed strip. Necessary and sufficient conditions are obtained for the related problem with real polynomials, and some classical theorems of de Bruijn and Pólya are extended. Specifically, we reveal new differential operators which map real polynomials into real polynomials whose zeros lie in a prescribed narrower strip; this is one of the properties that characterize a “strong universal factor” as defined by N. G. de Bruijn. The aforementioned results extend naturally to classes of entire functions whose zeros lie in a strip. Using elementary methods, we extend a related theorem of N. G. de Bruijn and J. Ilieff which states a sufficient condition for a function to have a Fourier transform with only real zeros. (Received September 17, 2013)