Certain Hybrid Matrix Polynomials Related to the Laguerre-Sheffer Family

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ABSTRACT

The main goal of this article is to explore a new type of polynomials, specifically the Gould Hopper-Laguerre-Sheffer matrix polynomials, through operational techniques. The generating function and operational representations for this new family of polynomials will be established. In addition, these specific matrix polynomials are interpreted in terms of quasi-monomiality. The extended versions of the Gould-Hopper-Laguerre-Sheffer matrix polynomials are introduced, and their characteristics are explored using the integral transform. Further, examples of how these results apply to specific members of the matrix polynomial family are shown.

Keywords: Quasi-monomiality, Gould-Hopper-Laguerre-Sheffer matrix, Matrix Polynomial.

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