ABSTRACT

In this work we have studied perturbation of weighted shift operators. For our study we consider both one-variable and two-variable weighted shift operators. There already exists in the literature, different necessary and sufficient conditions for a weighted shift operator to be either hyponormal, or weakly hyponormal, or 2-hyponormal, or quadratic hyponormal, or subnormal. We observe that these necessary and sufficient conditions are all framed in terms of the 'weight sequence' of the particular weighted shift. This immediately implies that any change or perturbation in the weights would reflect upon the hyponormality or any other similar property of the weighted shift. In this work we frame conditions which can exhaustively determine the situations where a perturbed shift will still retain its original property of hyponormality/ weak hyponormality/ 2-hyponormality/ quadratic hyponormality/ subnormality.