

Abstract

In this article, we give two different proofs of the existence of the minimal isometric dilation of a single contraction. Then using the existence of a unitary dilation of a contraction, we prove the ‘von Neumann’s inequality’. Next we give a complete description of the dilation of a pure contraction. We also discuss Ando’s proof of the existence of a unitary dilation of a pair of commuting contractions and give an example to show that this result does not hold, in general, for more than two commuting contractions. Then we describe and prove the ‘commutant lifting theorem’ and lastly, we use this theorem to prove the operator valued ‘Nevanlinna-Pick interpolation problem’.