

Abstract

The numerical range has been studied extensively in Hilbert spaces. Properties of the numerical range such as non-emptiness, containment of the spectrum and in particular, convexity have been proved and results have been given in these spaces. Furthermore, comparison of the numerical ranges with the spectra have been established. In this study, we consider the Banach space numerical range for a linear operator based on the definition by Lumer (1961) and establish its properties in relation to the above stated. Properties of the corresponding Banach numerical radius and spectrum are also discussed.