Abstract

Denote by T the bounded linear operator on a complex Hilbert space X and let T = U|T | be any polar decomposition of T with U a partial isometry and |T | = (T ∗T) 1 2 . Then, the Aluthge transform Te of T is the operator |T | 1 2 U|T | 1 2 . This study of the Aluthge transform Te was introduced and studied by Aluthge in his study of p-hyponormal operators in 1990. This notion has received much attention in recent years for a single operator T . For instance, quite a lot has been researched on the essential numerical range of Te of an operator T. In contrast to this, nothing is known about the joint essential numerical range of Aluthge transform Te of an m−tuple operator T = (T1, ..., Tm). The focus of this note is to study the properties of the joint essential numerical range of Aluthge transform for an m−tuple operator T = (T1, ..., Tm). This study is therefore helpful in the development of the research on hyponormal operators and semi-hyponormal operators.