

## Operators with diskcyclic vectors subspaces

### ABSTRACT

In this paper, we prove that if  $T$  is diskcyclic operator then the closed unit disk multiplied by the union of the numerical range of all iterations of  $T$  is dense in  $H$ . Also, if  $T$  is diskcyclic operator and  $\|T\| \leq 1$ , then  $T - I$  has dense range. Moreover, we prove that if  $\|T\| > 1$ , then  $1/T$  is hypercyclic in a separable Hilbert space  $H$  if and only if  $T \oplus IC$  is diskcyclic in  $H \oplus C$ . We show at least in some cases a diskcyclic operator has an invariant, dense linear subspace or an infinite dimensional closed linear subspace, whose non-zero elements are diskcyclic vectors. However, we give some counterexamples to show that not always a diskcyclic operator has such a subspace.

**Keyword:** Diskcyclic operator; Diskcyclic vector; Diskcyclicity criterion; Condition B1; Numerical range