

## JOINT MAXIMAL NUMERICAL RANGE

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Let  $H$  be a complex Hilbert space and let  $B(H)$  be the algebra of all bounded linear operators on  $H$ . Let  $T = (T_1, \dots, T_n)$  denote an  $n$ -tuple of operators in  $B(H)$ . The aim of this paper is to generalize the notion of maximal numerical range to  $n$ -tuple of operators and prove certain properties analogous to the single operator case.

### 1. INTRODUCTION

Let  $H$  be a complex Hilbert space with inner product  $\langle, \rangle$  and the norm  $\| \cdot \|$ , and let  $B(H)$  be the algebra of all bounded linear operators on  $H$ . Let  $T = (T_1, \dots, T_n)$  denote an  $n$ -tuple of operators in  $B(H)$ . Throughout this work  $\mathbb{C}$  and  $\mathbb{C}^n$  shall denote the complex plane and  $n$ -dimensional complex plane, respectively.

In this paper we are concerned with the generalization of the notion of maximal numerical range to  $n$ -tuple of operators and prove certain properties analogous to the single operator case.

Section 2 of the paper, however, is essentially a survey of what is known (but closely related to our work) about the numerical range, joint numerical range and maximal numerical range of an operator  $T$  on a Hilbert space  $H$ .

In Section 3, we shall introduce the generalized version of maximal numerical range and obtain an analogue to the results already established in [7].

Finally, the techniques employed here are simple and in most cases are analogous to that of single operator case, but the details are more cumbersome.