دانشگاه صنعتی سهند، تبریز، ایران
دوازدهمین سمینار بین المللی
جبر خطی
و کاربردهای آن
۲۷ الی ۲۸ تیرماه ۱۴۰۲
Sahand University of Technology, Tabriz, Iran
The 12th International Seminar on
Linear Algebra
and its Applications
July 18 - 19, 2023

Numerical radius: New Extensions and Inequalities

Ali Zamani*

Department of Mathematics, Farhangian University, Tehran, Iran

Abstract

We firstly define a norm on the space of bounded linear operators on a Hilbert space, which generalizes the numerical radius norm. We investigate basic properties of this norm and prove inequalities involving it. Further, for a positive element a in a unital C^*-algebra $\mathfrak{A}$ we define a semi-norm on $\mathfrak{A}$, which generalizes the a-operator semi-norm and the a-numerical radius. We derive new upper and lower bounds for the a-numerical radii of elements in $\mathfrak{A}$. Some applications and other related results are also discussed.

Keywords: Numerical range, numerical radius, inequality.

Mathematics Subject Classification [2010]: 47A12, 47A30, 46L05.

*Email address: zamani.ali85@yahoo.com