1067-Z1-1945   **Dawit Gezahegn Tadesse*** (`dgt0001@auburn.edu`), Mathematics and Statistics, 221 Parker Hall, Auburn University, Auburn, AL 36849-5310, **Xuhua Liu** (`xzl0002@auburn.edu`), Mathematics and Statistics, 221 Parker Hall, Auburn University, Auburn, AL 36849-5310, and **Tin-Yau Tam** (`tamtiny@auburn.edu`), Mathematics and Statistics, 221 Parker Hall, Auburn University, Auburn, AL 36849-5310. *A range associated with skew symmetric matrix.*

We study the range

$$S(A) := \{x^T A y : x, y \text{ are orthonormal in } \mathbb{R}^n\},$$

where A is an $n \times n$ complex skew symmetric matrix. It is a compact convex set. Power inequality $s(A^{2k+1}) \leq s^{2k+1}(A)$, $k \in \mathbb{N}$, for the radius $s(A) := \max_{\xi \in S(A)} |\xi|$ is proved. When $n = 3, 4, 5, 6$, relations between $S(A)$ and the classical numerical range and the k-numerical range are given. (Received September 22, 2010)