
ANUSH STEPANYAN, Université Laval

Nonlinear maps preserving the minimum and surjectivity moduli

Let X and Y be infinite-dimensional complex Banach spaces, and let $\mathcal{B}(X)$ (resp. $\mathcal{B}(Y)$) denote the algebra of all bounded linear operators on X (resp. on Y). We describe surjective maps φ from $\mathcal{B}(X)$ to $\mathcal{B}(Y)$ satisfying

$$c(\varphi(S) \pm \varphi(T)) = c(S \pm T)$$

for all $S, T \in \mathcal{B}(X)$, where $c(\cdot)$ stands either for the minimum modulus, or the surjectivity modulus, or the maximum modulus. We also obtain analog results for the finite-dimensional case.