GEOMETRIC PROPERTIES IN C^*-ALGEBRAS

ABSTRACT. A perturbation of an element x of norm 1 in a normed space is an element y such that $\|x \pm y\| \leq 1$. We characterize various objects in a C^*-algebra $\mathcal{A}$ in terms of the size and the location of some specific sets of perturbations. We discuss how spatial properties of operators in $\mathcal{A}$ may be described in geometric terms. We provide a geometric characterization of the hereditary C*-subalgebras of $\mathcal{A}$, as well as of any separable C*-algebra within its multiplier algebra.