The Birkhoff–James and Roberts orthogonality in C^*-algebras

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Orthogonality in normed linear spaces can be defined in different ways. In this talk, we consider two types of orthogonality in C^*-algebras. The Birkhoff–James orthogonality $a\perp_{BJ}b$ for arbitrary elements a and b of a C^*-algebra $\mathcal{A}$ is characterized in terms of states acting on $\mathcal{A}$. A characterization of a special case of the Roberts orthogonality $a\perp_R e$, where e is the unit in $\mathcal{A}$, is obtained in terms of the Davis–Wielandt shell of a.

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