ANALYSIS SEMINAR

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Projections with respect to various norms

by

Asuman Güven Aksoy

Claremont McKenna College

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ABSTRACT

Let $B(X)$ be a Banach algebra of all continuous linear operators on a Banach space X and $T \in B(X)$. For $(x, y) \in B(X) \times B(X^*)$, the operator norm of T is defined as $\|T\| = \sup |\langle Tx, y\rangle|$, while its numerical radius $\nu(T) = \sup |\langle Tx, y\rangle|$ under the added condition that $\langle x, y\rangle = 1$. The interplay between $\|T\|$ and $\nu(T)$ has been the subject of much research since Bauer's definition of numerical range in the 1960's. After pointing out some major results in this area, I discuss how extensions of operators, in particular the minimality of projections, can be measured with respect to numerical radii.

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Millikan 213, Pomona College

For more information contact contact Asuman G. aksoy at aaksoy@cmc.edu