Universidad Carlos III de Madrid
Department of Mathematics

COLLOQUIA

Wednesday, January 30, 2013

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On the stability of the metric projection operator

Abstract: Let M be a linear subspace in a normed linear space X. For a given $f \in X$ denote by $P_M f \subset M$ the best approximations of f in M, that is

$$\|f - P_M f\| = \inf_{m \in M} \|f - m\| .$$

When $P_M f$ consists of a single element for every $f \in X$ we call P_M a metric projection operator. In this talk we shall be interested in stability of the metric projection operator P_M relative to small perturbations of the subspace M. We shall consider a certain measure of distance $d(M, N)$ between subspaces M and N (which differs only slightly from the Hausdorff distance between the unit balls of M and N) and will estimate $\|P_M f - P_N f\|$ in terms of $d(M, N)$. Typically such an estimate will be of order $d(M, N)^\alpha$ with some $\alpha \leq 1$ which in general depends on the geometry of the space X. These are joint results with Allan Pinkus.

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Default Data

Time 10:45 to 11:45
Location Room 2.2.D08
Building Sabatini (2nd Floor)

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