SEMINAR

Grupo de Análise Funcional e Aplicações
Functional Analysis and Applications Group

Geometric conditions to existence and uniqueness of generalized projections in Hilbert spaces

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Abstract

For a closed subset C of a Hilbert space H and for a sublinear functional ρ, which is equivalent to the norm of the space, I will present (local) geometric conditions guaranteeing existence and uniqueness of nearest points to C in the sense of the semidistance generated by ρ. The functional ρ considered will be the Minkowski functional of some closed convex bounded subset F of H, with the origin in its interior; and the geometric conditions will be conditions on the shape of C and F near the points of interest. For that I will introduce the notion of curvature in H. I will finish by presenting the definition of directional curvature in finite dimensional spaces and an easy formula to calculate it.

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