İSTANBUL ANALYSIS SEMINARS

MODULUS OF NON-SEMICOMPACT CONVEXITY IN BANACH LATTICES

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Abstract: The talk will consist of two parts. In the first part, we develope the cornerstone theorem given in [2, Proposition 2.1], which states that for a Banach lattice E with order continuous norm (OCN), if D is a PL-compact subset of E, then $\chi(D) = \rho(D)$, by showing that if a Banach lattice E has OCN, then $w(D) = \rho(D)$ for every bounded subset D of E. Here, χ, ρ, and w are the Hausdorff measure of non-compactness, the measure of non-semicompactness introduced in [2], and the measure of weak non-compactness, respectively. Secondly, we introduce the notion of the modulus of non-semicompact convexity in Banach lattices defined with the help of the measure of non-semicompactness in Banach lattices. We extend the results obtained in [1] showing that the modulus of non-semicompact convexity is continuous and has some extra properties in reflexive Banach lattices.

References

[1] J. Banaś, "On modulus of noncompact convexity and its properties," *Canad. Math. Bull.* **30** (1987), no. 2, 186-192.

[2] B. de Pagter & A.R. Schep, "Measures of noncompactness of operators on Banach lattices," *J. Funct. Anal.* **78** (1988), no. 1, 31-55.

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