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Continuity of L_p Balls and an Application to Input-Output Systems

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Abstract

In this paper, the continuity of the set-valued map $p \to B_{\Omega,\mathcal{X},p}(r)$, $p \in (1, +\infty)$, is proved where $B_{\Omega,\mathcal{X},p}(r)$ is the closed ball of radius r in the space $L_p(\Omega, \Sigma, \mu; \mathcal{X})$ centered at the origin, (Ω, Σ, μ) is a finite and positive measure space, and $\mathcal{X}$ is a separable Banach space. An application to input-output systems described by Urysohn type integral operators is discussed.

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