The (p, q)-th power factorization for operators

Orlando Galdames Bravo

Orlando Galdames Bravo (`orgalbra@posgrado.upv.es`)
Universidad Politécnica de Valencia

Abstract. A linear operator $T\colon X(\mu) \to Y(\mu)$ between Banach function spaces over a finite measure space (Ω, Σ, μ), is (p, q)-th power factorable if it factors as $T = S \circ R$, where R factors through the p-th power space $X(\mu)_{[p]}$ and the Köthe adjoint S' factors through the q-th power space $(Y(\mu)')_{[q]}$. Under natural conditions as order continuity and Fatou, these operators admits factorization diagrams through $X(\mu)_{[p]} \to (Y(\mu)'_{[q]})'$ and $L^p(m_R) \to (L^q(m_{S'}))'$. In this talk we describe this class of operators which have properties as optimal extension, optimal restriction in the range, factorization through L^p and Lorenz spaces over a finite measure. We also will see that the property of (p, q)-th power factorization is inherited by means of complex interpolation of operators and for the case of kernel operators has a very simple characterization. We also expose some examples and propose some questions.