

Unconditional Bases in Function Spaces

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The double-phase potential space $L^{\varphi(x,t)}([0,1])$, where $\varphi(x,t) = t^p + a(x)t^q, 1 \leq p < q < \infty, x \in [0,1]$ and $a(x)$ is a measurable non-negative function defined on $[0,1]$, finds wide application in linear and nonlinear partial differential equations, the calculus of variations, regularity theory, and Fourier analysis. In the present paper, necessary and sufficient conditions are established that guarantee the basis property of the classical Franklin system in the aforementioned space.