

Generalized Trigonometric functions and bases in L^p space

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Abstract: Generalized trigonometric functions \sin_p and \cos_p generalize the familiar trigonometric functions and coincide with them when $p = 2$. These functions, which are related to eigenfunctions of p -Laplacian, have many similarities to their classical counterparts but also differences. We will show that they play an important part in the theory of the p -Laplacian, Theory of Approximation and Theory of Integral operators. Particular attention is paid to the basis properties of the sequences generated by generalized trigonometric functions in the context of Lebesgue spaces.