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USUAL AND ONE-SIDED INTEGRAL APPROXIMATIONS OF SPECIFIC FUNCTIONS BY TRIGONOMETRIC POLYNOMIALS AND APPLICATIONS

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Abstract

The talk will be devoted to joint works with Kryakin [1], Yudin [2], and Naum [3] on usual and one-sided integral approximations of specific functions (the characteristic function of an interval and the generalized Poisson kernel) by trigonometric polynomials. Applications of some of these results in investigations of the Jackson inequality (for the uniform approximation of continuous periodic functions by trigonometric polynomials) and of the Wiener problem on estimates of mean-square norms of functions with lacunary Fourier series will be presented.

Keywords: approximation of functions by polynomials, Jackson inequality, lacunary trigonometric series, mean-square norms, generalized Poisson kernel.

AMS Classification: 41A10, 42A10, 41A29

Bibliography

[1] **A. G. Babenko and Yu. V. Kryakin**, Approximation of the characteristic function of an interval and the Jackson inequality in $C(\mathbb{T})$, *Proc. Steklov Inst. Math.*, **266** (Suppl. 1) (2009) 56–63.

[2] **A. G. Babenko and V. A. Yudin**, Estimates for mean-square norms of functions with lacunary Fourier series, *Proc. Steklov Inst. Math.*, **297** (Suppl. 1) (2017) 60–73.

[3] **A. G. Babenko and T. Z. Naum**, One-sided integral approximations of the generalized Poisson kernel by trigonometric polynomials, *Proc. Steklov Inst. Math.*, **300** (Suppl. 1) (2018) 38–48.

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