



Kolloquium des Instituts für Mathematik

Wir laden ein zu dem Vortrag

Approximation of functions by sampling operators in Banach function spaces

Dr. Yurii Kolomoitsev

Georg-August-Universität Göttingen

The talk will address problems related to the approximation of functions by general linear sampling operators G_n in the setting of L_p spaces as well as general Banach lattices X . It is well known that traditional measures of smoothness often fail to provide accurate L_p -error estimates for approximation by sampling or interpolation operators, especially for functions with low smoothness. To overcome this difficulty, we construct a new semi-discrete modulus of smoothness based on Steklov averages. This modulus naturally combines both continuous and discrete information about the function, providing a bridge between its global L_p -smoothness and its values at the sampling nodes. Using this modulus, we establish matching direct and inverse inequalities as well as strong converse results that provide a complete characterization of the rate of approximation $\|f - G_n f\|_{L_p} = O(n^{-\alpha})$ for all $\alpha > 0$. Our results apply to a wide range of Banach function lattices X and operators, without requiring the functions to be smooth, continuous, or even bounded, thus extending classical results beyond the usual $\alpha > 1/p$ restriction.

Ort: Seminarraum Mathematik 1 (Hilbert)
Ratzeburger Allee 160, 23562 Lübeck

Zeit: Mittwoch, den 27. Mai 2026
16 Uhr c.t.

gez. Prof. Dr. J. Prestin