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9. Juni 2017

Einladung
zum
Mathematischen Kolloquium

Am Donnerstag, dem 29. Juni 2017, spricht

Herr Prof. Dr. Armin Iske,
Universität Hamburg, Department of Mathematics
Gast am Lehrstuhl Stochastik
bei Herrn Prof. Dr. Andreas Christmann

über das Thema

Error Estimates and Convergence Rates for Filtered Back Projection

Abstract

We consider the approximation of target functions from fractional Sobolev spaces by the method of filtered back projection (FBP), which gives an inversion of the Radon transform. To this end, we analyze the intrinsic FBP approximation error which is incurred by the use of a low-pass filter with finite bandwidth, before we prove L^2-error estimates on Sobolev spaces of fractional order.
The obtained error bounds are affine-linear with respect to the distance between the filter's window function and the constant function 1 in the L^∞-norm. With assuming more regularity for the window function, we refine the error estimates to prove convergence for the FBP approximation in the L^2-norm as the filter's bandwidth goes to infinity. We finally give asymptotic convergence rates in terms of the bandwidth of the low-pass filter and the smoothness of the target function.

Beginn: 16.30 Uhr (Kaffee/Tee ab 16.00 Uhr im Seminarraum 748)

Ort: Hörsaal H 19, Gebäude Naturwissenschaften II, Universitätsgelände

gez. L. Grüne