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OBERSEMINAR IM INSTITUT FÜR ANGEWANDTE ANALYSIS Sommersemester 2026

Im Rahmen des Oberseminars spricht am Montag, den **06. Juli 2026**:

FABIAN MERZ

Nonlocal Fisher information: lifting, local limit, and the Blachman-Stam inequality

We show that the nonlocal Fisher information—defined as the entropy dissipation of the Boltzmann entropy for nonlocal heat equations—admits a natural lifting in the sense of Guillemin and Silvestre. Important examples include the discrete Fisher information arising in Markov chains and the fractional Fisher information i_s associated with the fractional Laplacian $(-\Delta)^s$ on $\mathbb{R}^d$, $s \in (0, 1)$.

We further establish a Blachman–Stam inequality (BSI) for the fractional Fisher information i_s and prove that, for a large class of functions, i_s converges to the classical Fisher information as $s \rightarrow 1$. Through this nonlocal-to-local limit, we recover the classical Blachman–Stam inequality as well as the corresponding lifting property of the classical Fisher information.

Der Vortrag findet in **Raum E60, Helmholtzstr. 18** statt.

Beginn: 16 Uhr (c.t.). Alle Interessierten sind herzlich eingeladen.

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