

This project is a detailed investigation of projection operators arising in classical analysis and the geometry of Banach spaces.

We study - as an isometric problem - the asymptotic behaviour of Lebesgue constants of orthogonal projection operators associated to generalized Franklin and spline bases. Here we continue research initiated by Z. Ciesielski, A. Kamont, A. Yu. Shadrin and C. de Boor.

The anisotropic 2D Haar system is best adapted for studying isomorphic Banach space problems of the mixed norm Lebesgue spaces $L_p(L_q)$. Orthogonal projections built from block-bases of the 2D Haar system play a fundamental role in the problems under investigation: The Gamlen-Gaudet problem in $L_p(L_q)$, the subspace problem, and Andrew's stability for the 2D Haar system in $L_p(L_q)$.