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The L_p John ellipsoid for Sobolev functions

The L_p John ellipsoid for convex bodies was introduced by Lutwak, Yang and Zhang, which contains the John ellipsoid $(p = \infty)$, the LYZ ellipsoid $(p = 2)$, and the Petty ellipsoid $(p = 1)$ as special cases. In this talk, we will discuss the L_p John ellipsoids for Sobolev functions and for log-concave functions. Moreover, a functional Blaschke-Santaló inequality for L_2 John ellipsoid will be presented. This talk is based on the joint work with Ai-jun Li and Deping Ye.