Exact values of Bernstein widths for Sobolev classes of periodic functions. (Russian)

Denote by $W^r_p(T)$ the Sobolev class on a unit circle $T$ and by $b_n(W^r_p(T), L^q(T))$ the Bernstein width introduced by V. M. Tikhomirov [Some questions in approximation theory (Russian), Moskov. Univ., Moscow, 1976; MR0487161 (58 #6822)]. Here $1 < p \leq q < \infty$, $r \in \mathbb{N}$. For the odd-numbered Bernstein widths the authors find expressions in terms of the extremal problem $\|x\|_{L^q(0,1)} \to \sup, x(\cdot) \in W^r_p(0,1), x^{(i)}((1 - (-1)^i)/2) = 0, 0 \leq i \leq r - 1$.

Reviewed by Kairat T. Mynbaev