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## On approximation of periodic functions in Hölder and Sobolev spaces

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In the talk, we present some new results about approximation of  $2\pi$ -periodic functions by different polynomial methods in the Hölder spaces  $H_p^{r,\alpha}(0, 2\pi)$  and the Sobolev spaces  $W_p^r(0, 2\pi)$  for  $0 < p \leq \infty$ ,  $r \in \mathbb{N}$ , and  $0 < \alpha \leq r$ . We introduce several new objects for measuring the smoothness of functions and the errors of approximation in those spaces. The using of the introduced objects allows us to essentially improve the know results about approximation of functions in the mentioned spaces as well as to extent some results to the case  $0 < p < 1$ , which is not considered before.

This is joint work with Jürgen Prestin (Universität zu Lübeck, Institut für Mathematik).