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Summary: We introduce two classes of functions, one containing the class of $L^2$ differentiable functions, and another containing the class of $L^2$ lateral differentiable functions. For functions in these new classes we prove existence of best local approximation at several points. Moreover, we get results about the asymptotic behavior of the derivatives of the net of best approximations, which are unknown even for $L^2$ differentiable functions.

MSC:
41A50 Best approximation, Chebyshev systems
41A10 Approximation by polynomials

Keywords:
best local approximation; $L^2$ differentiability; algebraic polynomials

Full Text: Link