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Approximation by modified Taylor polynomials

It is known that the sequence of Taylor polynomials may diverge in the local Dorochlet spaces. However, the sequence of Fejer means is a good remedy and it converges to the initial function in the norm. Another possibility is to modify the last term of Taylor polynomials and create a convergent sequence. We study this phenomenon as an orthogonal projection to the subspace of polynomials of degree at most n.