

ON CONVERGENCE OF ORTHONORMAL EXPANSIONS FOR EXPONENTIAL WEIGHTS*

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Dedicated to Ed Saff on the occasion of his 60th birthday

Abstract. Let $I = (-d, d)$ be a real interval, finite or infinite, and let $W : I \rightarrow (0, \infty)$. Assume that W^2 is a weight, so that we may define orthonormal polynomials corresponding to W^2 . For $f : I \rightarrow \mathbb{R}$, let $s_m[f]$ denote the m th partial sum of the orthonormal expansion of f with respect to these polynomials. We show that if $f'W \in L_\infty(I) \cap L_2(I)$, then $\|(s_m[f] - f)W\|_{L_\infty(I)} \rightarrow 0$ as $m \rightarrow \infty$. The class of weights considered includes even exponential weights.

Key words. orthonormal polynomials, de la Vallée Poussin means

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