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ON THE LANCZOS ORTHOGONAL DERIVATIVE

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Abstract: We use the Kempf et al. (2014 & 2015) process of integration by differentiation to obtain the Lanczos generalized derivative, and we give a simple deduction of the Rangarajan–Purushothaman’s formula for the orthogonal derivative for higher orders. Besides, we show that the Lanczos derivative allows deduce an interesting algebraic expression for the first derivative of a function.

Keywords and Phrases: Differentiation by integration, Integration by differentiation, Lanczos derivative, Legendre polynomials, Orthogonal derivative.

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