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Katie Elliott* (katie_elliott@baylor.edu). *A Self-Adjoint Operator Generated by the Krall Differential Expression with the Krall Polynomials as Eigenfunctions.*

We construct the self-adjoint operator generated by the sixth-order Lagrangian symmetric Krall differential equation in the extended Hilbert space $L^2(-1, 1) \oplus \mathbb{C}^2$ which has the Krall polynomials as (orthogonal) eigenfunctions. The theory we use to create this self-adjoint operator was developed recently by L. L. Littlejohn and R. Wellman as an application of the general Glazman-Krein-Naimark (GKN) Theorem discovered by W. N. Everitt and L. Markus using complex symplectic geometry. In order to explicitly construct this operator, we use properties of functions in the maximal domain in $L^2(-1, 1)$ of the Krall expression that were previously established by S. M. Loveland. As we will see, continuity, as a boundary condition, is forced by our construction of this self-adjoint operator. (Received September 25, 2018)