

1116-33-2587 **Jessica Stewart Kelly*** (jessica.kelly@cnu.edu). *Spectral Analysis of the Exceptional Hermite Polynomials*. Preliminary report.

As Bochner's well-known classification theorem indicates, the only orthogonal polynomial systems arising from Sturm-Liouville type problems having polynomial solutions of every degree are the classical orthogonal polynomials of Hermite, Jacobi, and Laguerre. This result has been generalized with the introduction of the *exceptional* orthogonal polynomials. Exceptional orthogonal polynomial systems occur when we study Sturm-Liouville type problems but allow for a finite number of degrees to be missing from the sequence of eigenpolynomials. Our main results concern the spectral theory associated with exceptional Hermite differential expression. In particular, the self-adjoint operator associated with the Hermite differential expression may be studied using the classical Glazman, Krein, Naimark theory for ordinary differential operators. We will also discuss related results, such as completeness and the location of the zeros (Kuijlaars and Milson, 2014) for the exceptional Hermite polynomials. (Received September 22, 2015)