1139-33-422   **Robert Milson*** (`robert.milson@gmail.com`), Department of Mathematics & Statistics, Dalhousie University, Halifax, NS B3L4B6, Canada. *Toward the classification of Exceptional Orthogonal Polynomials: a progress report.*

Exceptional Orthogonal Polynomials are orthogonal polynomial familie s that arise as solutions for second-order eigenvalue problems. They generalize the classical families of Hermite, Laguerre, and Jacobi in that they allow for polynomial sequences with a finite number of missing degrees. The fundamental technique for constructing such objects is the Darboux transformation, which "dresses" a classical operators to obtain orthogonal polynomials with a finite number of exceptional degrees. Thanks to a foundational theorem that asserts that all exceptional orthogonal polynomials arise in precisely this fashion, it is now possible to envisage a complete classification of exceptional orthogonal operators and their attendant operators. In my talk I will describe the essential components of this programme and highlight the technical challenges that must be overcome en route to classification. (Received February 18, 2018)