Properties of some classes of quasi-orthogonal polynomials

08.11   **Kerstin Jordaan**
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Abstract: In this talk I will prove the quasi-orthogonality of some classes of hypergeometric and q-hypergeometric polynomials that do not appear in the Askey or q-Askey scheme for orthogonal polynomials. The polynomials considered include, as special cases, two $_3F_2$ polynomials considered by Dickinson [Proc. Amer. Math. Soc., 12 (1961), 185–194] and a $_2F_2$ polynomial with only positive zeros. I will derive three-term recurrence relations and second order differential equations for the quasi-orthogonal polynomials and investigate whether the recurrence coefficients satisfy conditions necessary for orthogonality established recently by Ismail and Wang [J. Math. Anal. Appl., 474(2) (2019), 1178–1197]. The location and interlacing of the real zeros of the polynomials under consideration will also be discussed.