Orthogonal polynomials on the unit circle and functional differential equations

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Numerous examples of orthogonal polynomials on the real line are known in an explicit form, but this is not the case for orthogonal polynomials on the unit circle. In this talk we present recent results concerning a far-reaching generalization of the Rogers–Szegő polynomials. A generating function of these polynomials obeys a functional differential equation of the pantograph type, and this allows us to deduce the explicit form of these polynomials in terms of q-hypergeometric functions.