DK Talk announcement

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"Generalized Fourier Series for Solutions of Linear Differential Equations"

Chebyshev polynomials, Hermite polynomials, Bessel functions and other families of special functions each form a basis of some Hilbert space. A Generalized Fourier Series is a series expansion in one of these bases, for instance a Chebyshev series. When such a series solves a linear differential equation, its coefficients satisfy a linear recurrence equation. We interpret this equation as the numerator of a fraction of linear recurrence operators. This interpretation lets us give a general algorithm for computing this recurrence, and a simple view of existing algorithms for several specific function families.

Joint work with Bruno Salvy.