

## A non-hypergeometric $E$ -function

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In a landmark 1929 paper, Siegel introduced the class of  $E$ -functions with the goal of generalising the transcendence theorems for the values of the exponential.  $E$ -functions are power series with algebraic coefficients subject to certain growth conditions that satisfy a linear differential equation. Besides the exponential, examples include Bessel functions and a rich family of hypergeometric series. Siegel asked whether all  $E$ -functions are polynomial expressions in these hypergeometric series. I will explain why the answer is negative (joint work with Peter Jossen).