
E-functions and G-functions: old and new

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Résumé

Siegel defined in 1929 two classes of power series with algebraic coefficients, the E - and G -functions, which generalize the Diophantine properties of the exponential and logarithmic function respectively. From the Diophantine point of view, the theory of E -functions culminated in the celebrated Siegel-Shidlovskii Theorem in 1956 but it is still incomplete for G -functions nowadays. In the 80's, André contributed deeply to our understanding of the nature of the differential equations satisfied by G -functions, from which he determined in 2000 the nature of the differential equations satisfied by E -functions. This enabled him to get a completely new proof of the Siegel-Shidlovskii Theorem. I will review all these classical results and present some recent consequences of André's point of view on the theory of E -functions.

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