Ernst Joachim Weniger was born in 1949 in Würzburg in Northern Bavaria (Germany). He studied chemistry and physics at the universities in Berlin (FU), Munich (LMU), and Regensburg. He did his PhD thesis in theoretical chemistry in Regensburg on the evaluation of the so-called multicenter molecular integrals of exponentially decaying functions, which is the most mathematical subtopic of molecular electronic structure theory and which requires a lot of special function theory. After that, he did postdoctoral work at the Department of Applied Mathematics of the University of Waterloo (Ontario, Canada), where his interest in slowly convergent or divergent sequences and series was aroused. He held visiting appointments at the Department of Applied Mathematics of the University of Waterloo, where he collaborated with the Symbolic Computation Group (Maple), at the Faculty of Mathematics and Physics of the Charles University in Prague (Czech Republic), and at the Center for Theoretical Studies of Physical Systems of the Clark Atlanta University in Atlanta (GA, USA).

**Levin-Type Transformations**

**Abstract:** It is generally accepted that the modern theory of non-linear and non-regular sequence transformations starts with two seminal articles by Shanks (1955) and Wynn (1956). These two articles initiated extensive research not only on numerical applications, but also on the derivation of new transformation (see for example the θ-algorithm by Brezinski (1971)). A different approach was pursued by Levin (1973) who introduced a new sequence transformations which was later generalized and extended by Weniger (1989, 2004). It is the characteristic feature of Levin’s transformation that it uses as input data not only a substring of a slowly convergent or divergent sequence \( \{s_n\}_{n=0}^{\infty} \), but also explicit truncation error or remainder estimates \( \{\alpha_n\}_{n=0}^{\infty} \). It is the explicit incorporation of the information contained in the remainder estimates which makes Levin-type transformations often remarkably powerful (in particular if factorially divergent power series have to be summed). But Levin-type transformations have also other, purely formal advantages: it is almost trivially simple to construct explicit expressions for Levin-type transformations. In the case of other transformations, this is usually extremely difficult or even practically impossible. These explicit expressions played a major role in the rigorous convergence analysis of the summation of the factorially divergent Euler series \( E(z) \sim \sum_{n=0}^{\infty} (-1)^n \frac{1}{n!} n^z \) by Borghi and Weniger (2015).