

SOME UNSOLVED PROBLEMS IN ITERATION THEORY

SUMMARY

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1. A Weak Dynamical System obeys the Aczél–Jabotinsky equations

$$\frac{\partial F}{\partial t} = g(x) \frac{\partial F}{\partial x},$$

$$g(x) \frac{\partial F}{\partial x} = g[F(x, t)],$$

$$g(x) := \left. \frac{\partial F(x, t)}{\partial t} \right|_{t=0}$$

but not (necessarily) the Translation Equation. Applications in physics etc. are sought.

2. The Translation Equation $F[F(x, s), t] = F(x, s + t)$ with condition $F(x, 1) = f(x)$ but $F(x, 0) = w(x) \neq x$ defines an “alternative present.” Meaningful applications?

3. Connection between (linear, multiplicative) right composition $\phi \rightarrow \phi \circ f$ and left composition $\phi \rightarrow g \circ \phi$ should be further explored.

4. Liedl’s pilgerschritt transformation could be possibly applied to phantom iterates as introduced by the author in 1985.