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Ludwig P Reich* (ludwig.reich@kfunigraz.ac.at), Institute of Mathematics, University of Graz, Heinrichstrasse 36, A-8010 A-8010 Graz, Austria. *Holomorphic solutions of certain functional and functional differential equations*. Preliminary report.

The aim of this talk is to prove the existence of holomorphic solutions of some classes of functional and functional differential equations in the complex domain. The method applied is the same for all classes of equations, namely a modification of Cauchy's method of majorants. In particular we consider:

(I) Generalized Böttcher equations

$$\varphi(p(z)) = \sum_{j+k=d} a_{jk} z^j \varphi(z)^k + \sum_{j+k>d} a_{jk} z^j z^k \varphi(z)^k,$$

where $d \geq 2$, $p(z) = az^d + \dots$ with $a \neq 0$ is analytic at $z = 0$, and $\varphi(z) = \rho z + c_2 z^2 + \dots$ is the unknown function. We have to impose some conditions on the coefficients in the first sum.

(II) Linear generalized Schröder equations like

$$A_0(z)f(z) + A_1(z)f(d_1z) + \dots + A_n(z)f(d_nz) = \Phi(z)$$

where $|d_j| < 1$ ($j = 1, \dots, n$), A_k ($k = 0, \dots, n$) and Φ are given (in particular entire) functions, and f is the unknown which also can be vector valued.

(III) Nonlinear generalized Schröder equations, like

$$f(cz) = \Phi(z, f(z))$$

with $|c| < 1$.

(II) and (III) are motivated by recent work of G. Gundersen, I. Laine et al. (Received September 20, 2000)