

Maksa, Gyula; Páles, Zsolt

Hyperstability of a class of linear functional equations. (English) Zbl 1004.39022

Acta Math. Acad. Paedagog. Nyházi. (N.S.) 17, 107-112 (2001).

First the following result is offered: Suppose that $M :]0, 1[\rightarrow \mathbb{R}$ is multiplicative and assumes a value greater than 1, and that $f :]0, 1[\rightarrow \mathbb{R}$ satisfies $|f(xy) - M(x)f(y) - M(y)f(x)| \leq \varepsilon$ for some $\varepsilon \geq 0$. Then $f(xy) - M(x)f(y) - M(y)f(x) = 0$ ($x, y \in]0, 1[$). The rest of the paper offers similar and more general results for equations of the form $f(x) + f(y) = \sum_{k=1}^n f[sg_k(t)]/n$ on a semigroup (f maps the semigroup into a real normed space, g_1, \dots, g_n are pairwise distinct automorphisms of the semigroup, forming a group under composition).

Reviewer: J.Aczél (Waterloo)

MSC:

[39B72](#) Systems of functional equations and inequalities

[39B52](#) Functional equations for functions with more general domains and/or ranges

[20M20](#) Semigroups of transformations, relations, partitions, etc.

Cited in **1** Review

Cited in **54** Documents

Keywords:

hyperstability of functional equations; cocycle equation; generalized cocycle equation; semigroup; normed space

Full Text: [EuDML](#)