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FE-2 **On The Hyers-Ulam-Rassias Stability Of The Generalized Quadratic Equations**

Let G be a groupoid and let E a topological vector space. $\varphi: G \to E$ satisfy(1). A set G is called a power-associative group if G is a nonempty set with a binary relation $x*y \in G$ such that the left powrs satisfy $x^{n+m} = x^m * n^n$ for all $m \in N$ and all $x \in G$. Left powers are defined by $x^1 = x$, x^{m+1}, $m \in N$.

THEOREM. IF $f: G \to E$ satisfes

$$f(x*y*z) + f(x) + f(y) + f(z) - f(x*y) - f(y*z) - f(y*z)$$
$$= \varphi(x, y, z) \quad (\forall x, y \in G),$$

and

(1) $f((x*y)^{2^n}) = f(x^{2^n} * y^{2^n})$ $(\forall x, y \in G$ and $n \in N)$

then

(T.1.2) $$\lim_{n\to\infty} \frac{\phi(x^{2^n}, y^{2^n})}{4^n} = \theta \quad (\forall x, y \in G)$$

(T.1.3) $$\Phi(x, x) := \lim_{n\to\infty} \sum_{k=0}^{n} \frac{1}{4^{k+1}} \varphi(x^{2^k}, x^{2^k}) \quad (\forall x \in G)$$

if and only if the limit $Q(x) = \lim_{n\to\infty} \frac{f(x^{2^n})}{4^{n+1}}$ exists for any $x \in G$, and Q is quadratic.

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FE-3 **Partitioned functional equations and approximate algebra homommorphisms**

We prove the generalized Hyers-Ulam-Rassias stability of a partitioned functional equation. It is applied to show the stability of algebra homomorphisms between Banach algebras associated with partitioned functional equations in Banach algebras.