HYERS–ULAM–RASSIAS STABILITY OF HOMOMORPHISMS IN QUASI-BANACH ALGEBRAS

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This paper is dedicated to Professor Themistocles M. Rassias.

Submitted by P. K. Sahoo

ABSTRACT. Let q be a positive rational number and n be a nonnegative integer. We prove the Hyers–Ulam–Rassias stability of homomorphisms in quasi-Banach algebras and of generalized derivations on quasi-Banach algebras for the following functional equation:

$$\sum_{i=1}^{n} f\left(\sum_{j=1}^{n} q(x_i - x_j)\right) + nf\left(\sum_{i=1}^{n} qx_i\right) = nq\sum_{i=1}^{n} f(x_i).$$

This is applied to investigate isomorphisms between quasi-Banach algebras. The concept of Hyers–Ulam–Rassias stability originated from the Th.M. Rassias' stability theorem that appeared in his paper: On the stability of the linear mapping in Banach spaces, Proc. Amer. Math. Soc. **72** (1978), 297–300.

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