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Hyers-Ulam stability of the Cauchy functional equation on square-symmetric groupoids.

(English) [Zbl 0980.39022](#)

Publ. Math. 58, No. 4, 651-666 (2001).

The author investigates the stability of the functional equation

$$f(x \diamond y) = f(x) * f(y) \quad (x, y \in X)$$

where $f : X \rightarrow Y$ and $(X, \diamond), (Y, *)$ are groupoids with square-symmetric operations, i.e., operations \diamond and $*$ satisfying $(x_1 \diamond x_2) \diamond (x_1 \diamond x_2) = (x_1 \diamond x_1) \diamond (x_2 \diamond x_2)$ and $(y_1 * y_2) * (y_1 * y_2) = (y_1 * y_1) * (y_2 * y_2)$ for all $x_1, x_2 \in X$ and $y_1, y_2 \in Y$, respectively. The results generalize the classical theorem of *D. H. Hyers* [Proc. Nat. Acad. Sci. USA 27, 222-224 (1941; [Zbl 0061.26403](#))] on the stability of the Cauchy functional equation.

Reviewer: [Gyula Maksa \(Debrecen\)](#)

MSC:

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

Cited in **3** Reviews
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Keywords:

[Hyers-Ulam stability](#)