

STABILITY FOR THE FUNCTIONAL EQUATION OF CUBIC TYPE

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ABSTRACT. (Joint work with Eun-Hui Lee and Yong-Soo Jung)

In this talk, we establish the stability of the orthogonally cubic type functional equation

$$\begin{aligned} & f(x_1 + x_2 + 2x_3) + f(x_1 + x_2 - 2x_3) + f(2x_1) + f(2x_2) \\ & + 7[f(x_1) + f(-x_1)] = 2fx(x_1 + x_2) \\ & + 4[f(x_1 + x_3) + f(x_1 - x_3) + f(x_2 + x_3) + f(x_2 - x_3)] \end{aligned}$$

for all x_1, x_2, x_3 with $x_i \perp x_j$, ($i, j = 1, 2, 3$), where \perp is the orthogonality in the sense of Ratz, and investigate the stability of the n -dimensional cubic type functional equation,

$$\begin{aligned} & 2f\left(\sum_{j=1}^{n-1} x_j + 2x_n\right) + 2f\left(\sum_{j=1}^{n-1} x_j - 2x_n\right) + 2\sum_{j=1}^{n-1} f(2x_j) \\ & + 7(n-1)[f(x_1) + f(-x_1)] = 4f\left(\sum_{j=1}^{n-1} x_j\right) \\ & + 8\sum_{j=1}^{n-1} [f(x_j + x_n) + f(x_j - x_n)], \end{aligned}$$

where $n \geq 3$ is an integer.

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