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The Ulam Stability Problem In Approximation Of Approximately Quadratic Mappings By Quadratic Mappings

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Abstract: S.M. Ulam, 1940, proposed the well-known Ulam stability problem and in 1941, the problem for linear mappings was solved by D.H. Hyers. D.G. Bourgin, 1951, also investigated the Ulam problem for additive mappings. P.M. Gruber, claimed, in 1978, that this kind of stability problem is of particular interest in probability theory and in the case of functional equations of different types. F. Skof, in 1981, was the first author to solve the Ulam problem for quadratic mappings. During the years 1982-1998, the author established the Hyers-Ulam stability for the Ulam problem for different mappings. In this paper we solve the Ulam stability problem by establishing an approximation of approximately quadratic mappings by quadratic mappings. Today there are applications in actuarial and financial mathematics, sociology and psychology, as well as in algebra and geometry.



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