Editorial
Ulam's Type Stability

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The original stability problem was posed by S. M. Ulam in 1940 and concerned approximate homomorphisms. The pursuit of solutions to this problem, but also to its generalizations and modifications for various classes of (difference, functional, differential, and integral) equations and inequalities, is an expanding area of research and has led to the development of what is now quite often called *Ulam's type stability theory* or *the Hyers-Ulam stability theory*. This theory has been the subject of many papers as well as talks presented at various conferences, especially at the series of ICFEI conferences (International Conference on Functional Equations and Inequalities) organized by the Department of Mathematics of the Pedagogical University in Cracow (Poland) since 1984.

This special issue on *Ulam's type stability* is focused on the recent achievements in that type of stability for various objects. It contains 16 articles (a survey and 15 regular research papers) which have been written by 29 authors from 11 countries.

As usual, most of the authors use in their investigations direct and fixed point methods. Some open problems are also formulated.

The issue covers a wide variety of problems for different classes of functional equations both in a single variable and in several variables. Their stability is traditionally investigated in classical Banach spaces, but also in complete (probabilistic) metric spaces, complete probabilistic quasimetric spaces, n-Banach spaces, (β, p)-Banach spaces, and fuzzy Banach spaces.

Several papers deal with the stability of several kinds of derivations, and, thus, derivations in Riesz algebras, $(m, n)_{(\sigma, \tau)}$-derivations in normed algebras, cubic $*$-derivations in Banach $*$-algebras, and some higher ring derivations in intuitionistic fuzzy Banach algebras are studied.

The issue contains a few papers on the phenomenon of superstability, an article on the stability of a functional inequality in p-Banach spaces, and a paper on the Cauchy fractional differential equation in the unit disk.

Moreover, general solutions of two conditional quadratic functional equations of Pexider type and the structure of the set of all regular points and the set of all irregular points for a Brouwer homeomorphism which is embeddable in a flow are also considered.

Finally, the survey presents some selected recent developments (results and methods) in the theory of Ulam's type stability. In particular, some aspects of stability and nonstability of functional equations in a single variable, the effect "stability implies completeness," some methods of proofs applied in that theory (the Forti method and the methods of fixed points), stability in non-Archimedean spaces, selected results on functional congruences, the notion of hyperstability, and stability of composite functional equations (e.g., of the Gołąb-Schinzel equation and its generalizations) are discussed there.

We believe that this volume will have some influence on the further research in that area of mathematics.

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