ON THE HYERS–ULAM–RASSIAS STABILITY OF
A PEXIDERIZED QUADRATIC INEQUALITY

KIL-WOUNG JUN AND YANG-HI LEE

Abstract. In this paper we prove the stability of the Pexiderized quadratic inequality $\|f(x+y) + g(x-y) - 2h(x) - 2k(y)\| \leqslant \varphi(x, y)$ in the spirit of D. H. Hyers, S. M. Ulam, Th. M. Rassias and P. Găvruta.

REFERENCES

[1] P. W. CHOLEWA, *Remarks on the stability of functional equations*, Aeq. Math. **27** (1984), 76–86.
[2] S. CZERWIK, *On the stability of the quadratic mapping in the normed space*, Abh. Math. Sem. Hamburg **62** (1992), 59–64.
[3] Z. GAJDA, *On the stability of additive mappings*, Internat. J. Math. and Math. Sci. **14** (1991), 431–434.
[4] V. FAĬZIEV AND TH. M. RASSIAS, *The space of (Ψ, γ)-pseudocharacters on semigroups.*
[5] P. GĂVRUTA, *A generalization of the Hyers-Ulam-Rassias stability of approximately additive mappings*, J. Math. Anal. and Appl. **184** (1994), 431–436.
[6] D. H. HYERS, *On the stability of the linear functional equation*, Proc. Natl. Acad. Sci. U.S.A. **27** (1941), 222–224.
[7] D. H. HYERS AND TH. M. RASSIAS, *Approximate homomorphisms*, Aeq. Math. **44** (1992), 125–153.
[8] D. H. HYERS, G. ISAC AND TH. M. RASSIAS, *On the asymptoticity aspect of Hyers-Ulam stability of mappings*, Proc. Amer. Math. Soc. **126** (1998), 425–430.
[9] D. H. HYERS, G. ISAC AND TH. M. RASSIAS, *"Stability of Functional Equations in Several Variables"*, Birkhäuser, 1998.
[10] G. ISAC AND TH. M. RASSIAS, *On the Hyers-Ulam stability of ψ-additive mappings*, J. Approx. Theory **72** (1993), 131–137.
[11] G. ISAC AND TH. M. RASSIAS, *Functional inequalities for approximately additive mappings,*, Stability of Mappings of Hyers-Ulam Type, Hadronic Press, Inc., Florida, (1994), 117–125.
[12] G. ISAC AND TH. M. RASSIAS, *Stability of ψ-additive mappings: Applications to nonlinear analysis*, Internat. J. Math. and Math. Sci. **19(2)** (1996), 219–228.
[13] K. W. JUN D. S. SHIN AND B. D. KIM, *On the Hyers-Ulam-Rassias Stability of the Pexider Equation*, J. Math. Anal. Appl. **239** (1999), 20–29.
[14] S.-M. JUNG, *On the Hyers-Ulam-Rassias stability of approximately additive mappings*, J. Math. Anal. Appl. **204** (1996), 221–226.
[15] S.-M. JUNG, *Pexiderized Quadratic Functional Equations.*
[16] Y. H. LEE AND K. W. JUN, *A Generalization of the Hyers-Ulam-Rassias Stability of Jensen's Equation*, J. Math. Anal. Appl. **238** (1999), 305–315.
[17] Y. H. LEE AND K. W. JUN, *A Generalization of the Hyers-Ulam-Rassias Stability of Pexider Equation*, J. Math. Anal. Appl. **246** (2000), 627–638.
[18] Y. H. LEE AND K. W. JUN, *A Note on the Hyers-Ulam-Rassias Stability of Pexider Equation*, J. Korean Math. Soc. **37** (2000), 111–124.
[19] Y. H. LEE AND K. W. JUN, *On the Stability of Approximately Additive Mappings*, Proc. Amer. Math. Soc. **128** (2000), 1361–1369.

[20] TH. M. RASSIAS, *On a modified Hyers-Ulam sequence*, J. Math. Anal. Appl. **158** (1991), 106–113.
[21] TH. M. RASSIAS, *On the stability of the linear mapping in Banach spaces*, Proc. Amer. Math. Soc. **72** (1978), 297–300.
[22] TH. M. RASSIAS, *On the stability of functional equations in Banach spaces*, J. Math. Anal. Appl., to appear.
[23] TH. M. RASSIAS, *On the stability of functional equations and a problem of Ulam*, Acta Math. Appl., to appear.
[24] TH. M. RASSIAS, *On the stability of functional equations originated by a problem of Ulam*, Studia Univ. "Babes-Bolyai", to appear.
[25] TH. M. RASSIAS, *On the stability of the quadratic functional equation*, Mathematica, to appear.
[26] TH. M. RASSIAS, *On the stability of the quadratic functional equation and its applications*, Studia Univ. "Babes-Bolyai", to appear.
[27] TH. M. RASSIAS, *Report of the 27th Internat. Symposium on Functional Equations*, Aeq. Math. **39** (1990), 292–293. Problem 16, 2°, Same report, p. 309.
[28] TH. M. RASSIAS AND P. ŠEMRL, *On the behavior of mappings which does not satisfy Hyers-Ulam stability*, Proc. Amer. Math. Soc. **114** (1992), 989–993.
[29] TH. M. RASSIAS AND J. TABOR, *What is left of Hyers-Ulam stability?*, Journal of Natural Geometry **1** (1992), 65–69.
[30] F. SKOF, *Local properties and approximations of operators*, Rend. Sem. Mat. Fis. Milano **53** (1983), 113–129.
[31] S. M. ULAM, *"Problems in Modern Mathematics"*, Chap. VI, Science eds., Wiley, Newyork, 1960.

© ELEMENT, Zagreb
Paper MIA-04-08

Mathematical Inequalities & Applications
www.ele-math.com
mia@ele-math.com