

Hayati, Bahman; Khodaei, Hamid; Rassias, Themistocles M.

On selections of some generalized set-valued inclusions. (English) Zbl 1443.39015

Rassias, Themistocles M. (ed.) et al., Mathematical analysis and applications. Cham: Springer. Springer Optim. Appl. 154, 205-216 (2019).

The authors determine some conditions for which a set-valued function satisfying certain inclusions admits a unique selection satisfying the corresponding functional equation.

For the entire collection see [[Zbl 1432.65003](#)].

Reviewer: [Mohammad Sal Moslehian \(Mashhad\)](#)

MSC:

[39B52](#) Functional equations for functions with more general domains and/or ranges

[40D25](#) Inclusion and equivalence theorems in summability theory

Keywords:

[inclusion](#); [set-valued map](#); [selection](#)

Full Text: [DOI](#)

References:

- [1] W. Smajdor, Superadditive set-valued functions. *Glas. Mat.* 21 (1986), 343-348 · [Zbl 0617.26010](#)
- [2] Z. Gajda, R. Ger, Subadditive multifunctions and Hyers-Ulam stability. *Numer. Math.* 80, 281-291 (1987) · [Zbl 0639.39014](#)
- [3] D. Popa, Additive selections of (α, β) -subadditive set valued maps. *Glas. Mat. Ser. III* 36, 11-16 (2001) · [Zbl 1039.28013](#)
- [4] J. Brzdęk, D. Popa, B. Xu, Selections of set-valued maps satisfying a linear inclusion in a single variable. *Nonlin. Anal.* 74, 324-330 (2011) · [Zbl 1205.39025](#)
- [5] D. Inoan, D. Popa, On selections of generalized convex set-valued maps. *Aequat. Math.* 88, 267-276 (2014) · [Zbl 1308.54017](#)
- [6] H. Khodaei, On the stability of additive, quadratic, cubic and quartic set-valued functional equations. *Results Math.* 68, 1-10 (2015) · [Zbl 1330.39029](#)
- [7] G. Lu, C. Park, Hyers-Ulam stability of additive set-valued functional equations. *Appl. Math. Lett.* 24, 1312-1316 (2011) · [Zbl 1220.39030](#)
- [8] K. Nikodem, On quadratic set-valued functions. *Publ. Math. Debrecen* 30, 297-301 (1984) · [Zbl 0537.39002](#)
- [9] K. Nikodem, D. Popa, On selections of general linear inclusions. *Publ. Math. Debrecen* 75, 239-249 (2009) · [Zbl 1212.39041](#)
- [10] K. Nikodem, D. Popa, On single-valuedness of set-valued maps satisfying linear inclusions. *Banach J. Math. Anal.* 3, 44-51 (2009) · [Zbl 1163.26353](#)
- [11] C. Park, D. O'Regan, R. Saadati, Stability of some set-valued functional equations. *Appl. Math. Lett.* 24, 1910-1914 (2011) · [Zbl 1236.39034](#)
- [12] M. Piszczek, On selections of set-valued inclusions in a single variable with applications to several variables. *Results Math.* 64, 1-12 (2013) · [Zbl 1277.39032](#)
- [13] M. Piszczek, The properties of functional inclusions and Hyers-Ulam stability. *Aequat. Math.* 85, 111-118 (2013) · [Zbl 1271.39031](#)
- [14] D. Popa, A property of a functional inclusion connected with Hyers-Ulam stability. *J. Math. Inequal.* 4, 591-598 (2009) · [Zbl 1189.39032](#)
- [15] K. Nikodem, *K-Convex and K-Concave Set-Valued Functions*, Zeszyty Naukowe, Politech, Krakow, 1989
- [16] H. Rådström, An embedding theorem for space of convex sets. *Proc. Am. Math. Soc.* 3, 165-169 (1952) · [Zbl 0046.33304](#)
- [17] W. Smajdor, Subadditive and subquadratic set-valued functions, *Prace Nauk. Uniw. Śląsk*, 889, Katowice (1987) · [Zbl 0626.54019](#)
- [18] R. Urbański, A generalization of the Minkowski-Rådström-Hörmander theorem. *Bull. Polish Acad. Sci.* 24, 709-715 (1976) · [Zbl 0336.46009](#)
- [19] M.E. Gordji, Z. Alizadeh, H. Khodaei, C. Park, On approximate homomorphisms: a fixed point approach. *Math. Sci.* 6, 59 (2012) · [Zbl 1271.39023](#)
- [20] J.H. Bae, W.G. Park, A functional equation having monomials as solutions. *Appl. Math. Comput.* 216, 87-94 (2010) · [Zbl](#)

1191.39026

- [21] M.E. Gordji, Z. Alizadeh, Y.J. Cho, H. Khodaei, On approximate C^* -ternary m -homomorphisms: a fixed point approach. *Fixed Point Theory Appl.* (2011), Art. ID 454093 · [Zbl 1216.39036](#)
- [22] Y.S. Lee, S.Y. Chung, Stability of quartic functional equation in the spaces of generalized functions. *Adv. Differ. Equ.* (2009), Art. ID 838347
- [23] F.P. Greenleaf, *Invariant Mean on Topological Groups and their Applications*, Van Nostrand Mathematical Studies, vol. 16, New York/Toronto/London/Melbourne, 1969 · [Zbl 0174.19001](#)
- [24] R. Badora, R. Ger, Z. Páles, Additive selections and the stability of the Cauchy functional equation. *ANZIAM J.* 44, 323-337 (2003) · [Zbl 1037.39008](#)
- [25] R.

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.