

Covering mappings and Ulam-Hyers stability results for coincidence problems

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ABSTRACT.

In this paper, we will present some existence and Ulam-Hyers stability results for coincidence point problems with singlevalued operators. The basic hypothesis in these results is the covering mappings.

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REFERENCES

- [1] Arutyunov, A. V., *Covering mappings in metric spaces and fixed points*, Doklady Mathematics, **76** (2007), No. 2, 665–668
- [2] Arutyunov, A., Avakov, E., Gel'man, B., Dmitruk, A. and Obukhovskii, V., *Locally covering maps in metric spaces and coincidence points*, J. Fixed Point Theory Appl., **5** (2009), 105–127
- [3] Bota-Boriceanu, M. F. and Petrușel, A., *Ulam-Hyers stability for operatorial equations*, Analel Univ. Al. I. Cuza, Iași, **57** (2011), 65–74
- [4] Dmitruk, A. V., Milyutin, A. A. and Osmolovskii, N. P., *Lyusternik's theorem and the theory of extrema*, Russian Math. Surveys, **35** (1980), No. 6, 11–51
- [5] Dontchev, A. L. and Rockafellar, R. T., *Regularity and conditioning of solution mappings in variational analysis*, Set-Valued Analysis, **12** (2004), No. 1, 79–109
- [6] Ioffe, A. D., *Metric regularity and subdifferential calculus*, Russian Math. Surveys, **55** (2000), No. 3, 501–558
- [7] Ioffe, A. D., *On perturbation stability of metric regularity*, Set-Valued Analysis, **9** (2001), No. 1-2, 101–109
- [8] Lyusternik, L. A., *On the conditional extrema of functionals*, Mat. Sbornik, **41** (1934), 390–401 (in Russian)
- [9] Mordukhovich, B. S., *Variational analysis and generalized differentiation. I. Basic Theory*, Grundlehren Math. Wiss. **330**, Springer, Berlin, 2006
- [10] Mordukhovich, B. S. and Wang, B., *Restrictive metric regularity and generalized differential calculus in Banach spaces*, Int. J. Math., Sci., **50** (2004), 2653–2680
- [11] Rus, I. A., *Remarks on Ulam stability of the operatorial equations*, Fixed Point Theory, **10** (2009), No. 2, 305–320
- [12] Rus, I. A., Petrușel, A. and Petrușel, G., *Fixed point theory*, Cluj University Press, 2008
- [13] Uderzo, A., *A metric version of Milyutin theorem*, Set-Valued Var. Anal., **20** (2012), 279–306, DOI 10.1007/s11228-011-0193-9

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