

A CLASS OF NON-CONTRACTIVE OPERATORS WITH A UNIQUE FIXED POINT

BIAGIO RICCERI AND CONSTANTIN ZĂLINESCU

Dedicated to Professor Ioan A. Rus on the occasion of his 70th birthday

Department of Mathematics, University of Catania
Viale A. Doria 6, 95125 Catania, Italy
E-mail: ricceri@dmi.unict.it

Faculty of Mathematics, "A.I. Cuza" University
Bd. Carol I, Nr. 11, 700506 Iași, Romania
E-mail: zalinesc@uaic.ro

Abstract. In this paper, we prove the following result: Let X be a real Hilbert space and let $J : X \rightarrow \mathbb{R}$ be a C^1 functional, such that 0 is a global maximum of J and J' is Lipschitzian with Lipschitz constant less than 2. Then, 0 is the unique fixed point of J' .

Key Words and Phrases: unique fixed point, Lipschitzian derivative, global maximum.

2000 Mathematics Subject Classification: 47H10.

REFERENCES

- [1] M. Romeo, Personal communication.
- [2] C. Zălinescu, *Convex Analysis in General Vector Spaces*, World Scientific, Singapore (2002).

Received: October 27, 2006; Accepted: November 23, 2006.