ANALELE ŞTIINŢIFICE ALE UNIVERSITĂŢII "AL.I. CUZA" DIN IAŞI (S.N.)
MATEMATICĂ, Tomul LXI, 2015, f.1

A MULTI-VALUED CHOQUET INTEGRAL WITH RESPECT TO A MULTISUBMEASURE

BY

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Abstract. Jang, Kim and Kwon introduced a multi-valued Choquet integral for multifunctions with respect to real fuzzy measures and Zhang, Guo and Liu established for this kind of integral some convergence theorems. The aim of this paper is to present another type of set-valued Choquet integral, called by us the Aumann-Choquet integral, for non-negative measurable functions with respect to multisubmeasures taking values in the class of all non-empty,compact and convex sets of $\mathbb{R}_+$ on which we use the order relation considered by Guo and Zhang. For this kind of integral, we study some important properties and we prove that if we add some supplementary properties to the multisubmeasure then they are also preserved by the set-valued function defined as Aumann-Choquet integral.

Mathematics Subject Classification 2010: 28B20, 28C15, 49J53.

Key words: real Choquet integral, set-valued Choquet integral, multisubmeasure, absolute continuity.