# FUNDAMENTAL RELATION ON HYPER $BCK$-ALGEBRAS

R. A. BORZOOEI[1], R. AMERI[2] AND M. HAMIDI[3]

ABSTRACT. In this paper, we consider the notions of $BCK$-algebras and (weak commutative) hyper $BCK$-algebras, give some related results, introduce the relation $\beta$ on hyper $BCK$-algebras and let $\beta^*$ be the transitive closure of $\beta$. Then by considering the concept of strongly regular equivalence relation (fundamental relation) $\beta^*$ on hyper $BCK$-algebras, we define the notion of fundamental $BCK$-algebra and we prove that any countable $BCK$-algebra is a fundamental $BCK$-algebra.

[1] DEPARTMENT OF MATHEMATICS, SHAHID BEHESHTI UNIVERSITY, TEHRAN, IRAN
[2] SCHOOL OF MATHEMATICS, COLLEGE OF SCIENCES, UNIVERSITY OF TEHRAN, TEHERAN, IRAN
[3] DEPARTMENT OF MATHEMATICS, PAYAME NOOR UNIVERSITY, TEHRAN, IRAN
*E-mail address*: [1] `borzooei@sbu.ac.ir`, [2] `rameri@ut.ac.ir`,
[3] `m.hamidi20@gmail.com`