



# Equivalence relations on fuzzy subgroups\*

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**Abstract**—We compare four equivalence relations defined in fuzzy subgroups: Isomorphism, fuzzy isomorphism and two equivalence relations defined using level subset notion. We study if the image of two equivalent fuzzy subgroups through aggregation functions is a fuzzy subgroup, when it belongs to the same class of equivalence and if the supreme property is preserved in the class of equivalence and through aggregation functions.

**Index Terms**—Aggregation function, fuzzy subgroup, level subgroup, isomorphism, fuzzy isomorphism, sup property