

# Fuzzy Approximation Spaces and the $F$ -transforms

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## **Abstract**

The objective of this work is to associate the concepts of fuzzy rough sets and fuzzy topologies with the  $F$ -transforms. The notions of the direct  $F^\uparrow$  and  $F^\downarrow$  transforms are extended to the case where they are applied to an  $L$ -valued function on a space with an  $L$ -valued fuzzy partition. It is shown that these  $F$ -transforms are particular cases of upper and lower fuzzy approximation operators. Moreover, every  $F$ -transform component induces a continuous map between two associated fuzzy topological spaces.