

**GENERALIZATIONS OF WEAKER FORMS OF OPEN MAPS IN
FERMATEAN FUZZY TOPOLOGICAL SPACES AND THEIR
APPLICATIONS**

D. Sobana, P. Premalatha*, A. Swaminathan, A. Vadivel*****

Department of Mathematics,
Kandaswamy Kandam's College,
P-velur, Tamil Nadu - 638182, INDIA

E-mail : slmsobana@gmail.com

*Department of Mathematics,
Chettinad College of Engineering and Technology,
Karur, Tamil Nadu, INDIA

E-mail : premalathagukesh@gmail.com

**Department of Mathematics,
Annamalai University,
Annamalai Nagar - 608002, Tamil Nadu, INDIA

E-mail : asnathanway@gmail.com

***PG and Research Department of Mathematics,
Arignar Anna Govt. Arts College,
Namakkal - 637002, Tamil Nadu, INDIA

E-mail : avmaths@gmail.com

(Received: Nov. 19, 2025 Accepted: Mar. 29, 2026 Published: Apr. 30, 2026)

Abstract: In this paper, we study Fermatean fuzzy Z -open and Fermatean fuzzy Z -closed functions within the framework of Fermatean fuzzy topological spaces. We investigate several significant properties of these functions and examine their relationships. In addition, we present a real-life decision-making application based on an entropy measure for Fermatean fuzzy sets, illustrating their practical usefulness in real-world situations.