South East Asian J. of Mathematics and Mathematical Sciences
Vol. 20, No. 3 (2024), pp. 435-452

DOI: 10.56827/SEAJMMS.2024.2003.32 **ISSN (Online): 2582-0850**

ISSN (Print): 0972-7752

NANO WEAKLY $g\#$ IRRESOLUTE FUNCTIONS AND NANO WEAKLY $g\#$ HOMEOMORPHISMS IN NANO TOPOLOGICAL SPACES

P. Kalaivani and R. Nithyakala

Department of Mathematics,
Vidyasagar College of Arts and Science,
Udumalpet, Tirupur District, Tamil Nadu, INDIA

E-mail : kalaiudt6@gmail.com, nithyaeswar11@gmail.com

(**Received:** *Aug. 22, 2024* **Accepted:** *Dec. 21, 2024* **Published:** *Dec. 30, 2024)*

Abstract: The purpose of this paper is to extend the study of $NWg\#$-closed and $NWg\#$-open sets using properties of sets. Also introduce the notion of Nano Weakly $g\#-(NWg\#)$ irresolute functions and Nano Weakly $g\#-(NWg\#)$ homeomorphisms in Nano topological spaces and studied some of their basic characterizations. Also define the new sets such as $NWg\#$ kernel and $NWg\#$ surface by using $NWg\#$- open sets and $NWg\#$ - closed sets. The basic characterizations with nano interior and nano closure are discussed. Also Nano infimum and Nano supremum of sets are introduced using greatest lower bound and least upper bound properties.

Keywords and Phrases: $NWg\#ker$, $NWg\#$ surf, $NWg\#$- continuous functions, $NWg\#$ - irresolute functions, $NWg\#$- homeomorphisms.

2020 Mathematics Subject Classification: 54C05.

1. Introduction

The topological spaces have many applications for different types of sets like fuzzy sets, nano sets, permutation sets and soft sets. In 2013 Lellis Thivagar. M and Carmel Richard [7] established Nano topology and introduced Nano continuity, Nano irresolute, Nano open mappings and Nano homeomorphism. The term irresoluteness was introduced by Crossley S.G and Hildebrand S.K [3] in 1972.