

## WEAKLY NANO SEMI-I-OPEN SETS AND WEAKLY NANO SEMI-I-CONTINUOUS FUNCTIONS

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Date of Receiving : 02. 06. 2022  
Date of Revision : 30. 11. 2022  
Date of Acceptance : 02. 12. 2022

**Abstract.** In this paper, the notion of weakly nano semi-I-open sets is introduced and used to define the notions of weakly nano semi-I-continuous functions, weakly nano semi-I-open functions, and weakly nano semi-I-closed functions. Some characterizations and properties regarding these concepts are discussed.

### 1. Introduction

Thivagar and Richard [22] established the field of nano topological spaces. In 2016, Thivagar and Devi [20] introduced the notion of nano local functions and explore the field of nano topological spaces. In 2018, Parimala and Jafari [16] have introduced the notion of nano I-continuous functions in nano ideal topological spaces. Jamal M. Mustafa [14] studied the weakly b-I continuous functions in ideal topological spaces, also, in [11 - 13] he studied some covering properties and continuous functions using the semi-open sets. In this paper we introduce and study the new classes of continuous, irresolute and open functions namely *weakly nano semi-I-continuous*, *weakly nano semi-I-irresolute* and *weakly nano semi-I-open* functions in nano ideal topological spaces and we discuss some of their properties.

Let  $(X, \tau)$  be a topological space and  $A \subseteq X$ . The complement of  $A$  in  $X$ , the closure of  $A$ , the interior of  $A$  and the power set of  $A$  will be denoted by  $X - A = A^c$ ,  $Cl(A)$ ,  $Int(A)$  and  $\mathcal{P}(A)$ , respectively. The subject of ideals in topological spaces has been studied by Kuratowski [8] and Vaidyanathaswamy [24]. An ideal on a topological space  $(X, \tau)$  is defined as a non-empty collection  $I$  of subsets of  $X$  satisfying the following two conditions: (1) If  $A \in I$  and  $B \subseteq A$ , then  $B \in I$ ; (2) If  $A \in I$  and  $B \in I$ , then

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2010 *Mathematics Subject Classification.* 54A05, 54D10.

*Key words and phrases.* weakly nano semi-I-continuous function, weakly nano semi-I-irresolute function, weakly nano semi-I-open function.

*Communicated by.* Wadei Al-Omeri