

**A STUDY ON  $N\hat{g}^*s$ - CLOSED SETS IN NANO  
TOPOLOGICAL SPACES**

**Carolinal J. and Anto M.**

PG and Research Department of Mathematics,  
Annai Vellankanni College,  
Tholayavattam - 629157, Tamil Nadu, INDIA

E-mail : carolinalphonse@gmail.com, antorbjm@gmail.com

**(Received: Jan. 06, 2022 Accepted: Jul. 18, 2023 Published: Aug. 30, 2023)**

**Abstract:** In this paper, we define and study about a new type of Nano generalized closed set called  $N\hat{g}^*s$ -closed sets in nano topological space. The relationship of  $N\hat{g}^*s$ -closed sets with other known Nano generalized closed sets and the characteristics of  $N\hat{g}^*s$ -interior,  $N\hat{g}^*s$ -exterior,  $N\hat{g}^*s$ -closure,  $N\hat{g}^*s$ -boundary and  $N\hat{g}^*s$ -border are studied.

**Keywords and Phrases:**  $N\hat{g}^*s$ -closed sets,  $N\hat{g}^*s$ -interior,  $N\hat{g}^*s$ -exterior,  $N\hat{g}^*s$ -clouser,  $N\hat{g}^*s$ -boundary and  $N\hat{g}^*s$ -border.

**2020 Mathematics Subject Classification:** 54A05, 54A10.

### **1. Introduction**

N. Levine [8] introduced the concept of generalized closed sets in 1970. In 2013, M. Lellis Thivagar [7] has introduced nano topological space with respect to a subset  $X$  of universe  $U$ , which is defined in terms of lower and upper approximation of  $X$ . The elements of a nano topological space are called the nano-open sets. After studying nano-interior and nano-closure of a set. He has also introduced, among other, some certain weak form of nano open sets such as nano  $\alpha$ -open sets, nano semi-open sets and nano pre open sets. K. Bhuvaneswari and K. Mythili Gnanapriya [3] was introduced nano generalized closed set [2014] in nano topological space. The concept of  $\hat{g}^*s$ -closed sets was introduced by S. Pious Missier and M. Anto [9] in 2014. The aim of this paper is to introduce a new class of sets