*Poincare Journal of Analysis & Applications*
*Vol. 8, No. 1(I) (2021), Special issue, 273-279*


# NANO gj -COMPACTNESS AND NANO gj-CONNECTEDNESS ON NANO TOPOLOGICAL SPACES

D. SASIKALA† AND K.C. RADHAMANI

| | | |
|---|---|---|
| Date of Receiving | : | 28. 12. 2020 |
| Date of Revision | : | 06. 02. 2021 |
| Date of Acceptance | : | 22. 02. 2021 |

***Abstract.*** In this paper, a new notion of nano gj-compactness and nano gj-connectedness are initiated and related theorems are proved. Moreover, we explain some properties with interesting examples.

## 1. Introduction

Topology is an important part of mathematics research area. In particular, nano topology is an escalating part of topology. Connectedness in topology was introduced by A.V.Arhangelskii, et.al.,[1]. The idea of compactness is an essential part of general topology. Many recent researchers contribute their work on connectedness and compactness in general topology.
Lellis Thivagar[2] introduced nano topology which was defined in terms of lower, upper approximations and boundary region using an equivalence relation on it. The idea of nano compactness and nano connectedness in nano topological space was given by S.Krishnaprakash, et.al.,[3]. Nano j-closed sets and nano gj-closed sets were launched by D.Sasikala and K.C.Radhamani[5].
In this article, nano gj-compactness and nano gj-connectedness on nano topological spaces are established.

## 2. Preliminaries

**Definition 2.1**[2] Let U be the universal set, a nonempty finite set of objects and R be an equivalence relation on U. Then $(U, R)$ is said to be an approximation space.
**Definition 2.2**[2] Let $X \subseteq U$. The lower approximation of X with respect to the equivalence relation R is the set of all objects, which can be certainly classified as X with respect to R and is denoted by $L_R(X)$. That is $L_R(X) = \cup\{R(a) : R(a) \subseteq X, a \in U\}$,

2010 *Mathematics Subject Classification.* xxC15, xxA38.
*Key words and phrases.* Nano gj-open cover, nano gj-compact, nano gj-connected, nano gj-irresolute.
*Communicated by.* S. Jafari and P. Gananchandra
† *Corresponding author.*