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# On Modified Topological Invariants of Various Networks

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## Abstract

Chemical Structures are being studied to understand the insight of mathematical models of chemical molecules and this phenomenon is known as chemical graph theory. In this aspect, the role of topolog- ical indices (which tag to each chemical structure) is vital in making the difference between the base of molecules and its branching pattern. It is also a technique which use to explain the characteristics of compounds such as temperature and oscillation during their chemical reaction. These are million in counting which is based on a single edge but in this article, we try to enhance this idea for a path of length two between certain pair (u, v)ε V(G) and calculate productive and compact informative results which are numerically and graphically representing better results than single edge formulas by using this notion by edge path we can drive smoothly millions of existing formulas of topological indices Bi-distance edge-based topological indices. In this article, we calculate different Bi-Distance degree-based topological indices namely; Randic index, Forgotten index, Arithmetic Geometric index, Geometric Arithmetic index, Zagreb indices, Sanskruti index, Second Arithmetic Geometric index, and Forth Atom-bond Connectivity index for Oxide Chain and Silicate Networks.

**Keywords:** Chain of Oxide Network, Silicate Network, Topological indices and Bi-distance degree based topological indices.

## 1. Introduction

A graph is the pictorial representation of different types of data or information. All the graphs presented in this article are two-dimensional, regular, simple and planer in nature with a set of points called vertices (nodes) connected with lines called edges (links).
Mathematical chemistry is an important approach of theoretical chemistry in which we study molecular structure by different mathematical techniques without discussing quantum mechanics. For the development and advancement of chemical sciences, this theory acts as the backbone. For the development of QSAR models, molecular descriptors play an efficient role. Molecular