

Padmakar-Ivan Type Indices of Titanium Oxide Nanosheet Using Strength Weighted Cut Method

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ABSTRACT

Topological indices, which transform a chemical graph into a numerical value, are numerically invariant. We can predict the physicochemical characteristics of the molecules with the help of these topological indices. These indices are used in QSAR and QSPR models. There are several topological indices that describe the physicochemical, and structural properties of chemical structures. Padmakar-Ivan type indices are one kind of topological index computed based on the distance of the vertices and edges. Titanium oxide is an alkaline, divalent covalent semiconductor that is non-toxic and crystallized with several distinctive features. Titanium nanosheets are used in a wide range of processes, such as photocatalysis, stabilising semiconductors, water purification, and drug creation. We take two-dimensional titanium oxide nanosheet lattice into consideration throughout this study. In this paper we obtain generalised expression to compute Padmakar-Ivan type indices for the titanium oxide nanosheet using strength weighted cut method technique. We also analyse vertex and edge versions of Padmakar-Ivan type indices of titanium oxide nanosheet and compare them using graphical methods.

Keywords: Topological index, cut method, quotient graphs.

