

Wiener Index Of A Graph And Chemical Applications

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Wiener Index Of A Graph

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Chapter 1 Wiener index of a graph 11 Introduction Let $G = (V(G), E(G))$ be a simple connected undirected graph For sub-sequent discussions we will always consider such graphs only

The Wiener index of a graph - Mathematics TU Graz

Wiener index of trees As the path and therefore the distance between two vertices of a tree is unique, the Wiener index of a tree is much easier to compute than that of an arbitrary graph In the following, we will show different formulas for computing the Wiener index, in the first part direct

ON THE WIENER INDEX OF A GRAPH

The Wiener index of a graph G , denoted by $W(G)$ is the sum of the distances between all (unordered) pairs of vertices of G In this paper, we obtain the Wiener index of line graphs and some class of graphs Key words: Wiener index, line graph, distance, diameter Abstrak

WIENER INDEX OF A GRAPH AND CHEMICAL APPLICATIONS

First mathematical definition of Wiener index, based on the concept of graph-theoretical distance as encoded in the distance matrix [11] is due to Hosoya [5] since its initiation the wiener index was used in a numerous structure-property studies [15] Wiener index was developed by the American

Complexity to Find Wiener Index of Some Graphs

Wiener Index of a Cycle in the Context of Some Graph Operations 3 • Graphs with boxicity k (S is the set of boxes of dimension k) • Line graphs (S is the set of edges of a graph) 22 Interval graphs An undirected graph $G = (V, E)$ is said to be an interval graph if the vertex set V can be put into one-to-one correspondence with a set I of intervals on the real line such that

Molecular graphs and the inverse Wiener index problem

The Wiener index is a distance-based graph invariant, used as one of the structure descriptors for predicting physicochemical properties of organic compounds (often those significant for pharmacology, agriculture, environment-protection, etc) The Wiener index was introduced by the chemist H Wiener

Steiner Wiener index of block graphs

Steiner Wiener index of block graphs Matja z Kov se, Rasila V A, Ambat Vijayakumar Abstract Let S be a set of vertices of a connected graph G The Steiner distance of S is the

On the Wiener Complexity and the Wiener Index of Fullerene ...

graph exist and can a graph with the maximal Wiener complexity has the maximal Wiener index? 2 Wiener Complexity of Fullerene Graphs The Wiener complexity of fullerene graphs was examined for fullerene and IPR-fullerene graphs with $n = 232$ and $n = 270$ vertices, respectively A typical distribution of the numbers of fullerene graphs with

Upgrading the Wiener index

Wiener index, and that there is a very good linear correlation between W and its "upgraded" variants Keywords: Wiener index, topological index, 3D-structure descriptors, chemical graph theory, QSPR, QSAR INTRODUCTION The Wiener index W is the oldest molecular-graph-based structure-descriptor 2 ...

INVERSE PROBLEM ON THE STEINER WIENER INDEX

In [23], we proposed a generalization of the Wiener index concept, using Steiner distance Thus, the k -th Steiner Wiener index $SW_k(G)$ of a connected graph G is defined by $SW_k(G) = \sum_{S \subseteq V(G), |S|=k} d(S)$: For $k = 2$, the Steiner Wiener index coincides with the ordinary Wiener index It is usual to consider SW_k for $2 \leq k \leq n-1$, but the above definition

Wiener Index of Graphs using Degree Sequence

Wiener Index of Graphs using Degree Sequence J Baskar Babujee and J Senbagamalar Department of Mathematics Anna University, Chennai-600 025, India baskarbabujee@yahoo.com senbagamalar2005@yahoo.com Abstract The Wiener index of a graph is defined as the sum of distances between all pairs of vertices in a connected graph Wiener index correlates

Keywords Subdivision Graphs, Line Graphs, Wheel W_n ...

Let G be a connected graph The Wiener index of a graph is defined as the sum of all distances between different vertices, and the Hosoya polynomial of a graph G is defined as $(x, y) = \sum_{u, v \in V(G)} d(u, v) x^{d(u)} y^{d(v)}$ In this paper, we find the Wiener index and Hosoya polynomial of the line graphs of the wheel graphs using the

How to compute the Wiener index of a graph

The Wiener index of a graph G is equal to the sum of distances between all pairs of vertices of G , It is known that the Wiener index of a molecular graph correlates with certain physical and chemical properties of a molecule In the

MINIMUM WIENER INDICES OF TREES AND UNICYCLIC ...

The Wiener index of a connected graph is defined as the sum of distances between all unordered pairs of its vertices We determine the minimum Wiener indices of trees and unicyclic graphs with given number of vertices and matching number, respectively The extremal graphs are characterized

On the vertex-edge Wiener indices of thorn graphs

The vertex-edge Wiener index is a graph invariant defined as the sum of distances between vertices and edges of a graph. In this paper, we study the relation between the first and second vertex-edge Wiener indices of thorn graph and its parent graph and examine several special cases of the results. Results are applied to compute the first and

Species Diversity Concepts

abundance index. There are two major forms of these indices: dominance indices and information indices. While more than 60 indices have been described, we will look at the three most widely used in the ecological literature: Simpson's, Shannon-Weiner, and Brillouin. Simpson's Index is considered a dominance index because it

On the Wiener indices of molecular graphs - IJRTER

The Wiener index $W(G)$ of connected graph G is the sum of distances between all pairs of vertices in G [2]. Equivalently, $W(G)$ is obtained by the first derivative of $H(G,x)$ at $x = 1$, i.e.

The Szeged and the Wiener Index of Graphs

of them, formulas are given for the Wiener index of a composite graph in terms of parameters of factors, more precisely in the numbers of edges and vertices of the factors. Although it is also possible to obtain such formulas for the Szeged index of all these compositions, the obtained

Maximum Wiener Index of Unicyclic Graphs with Fixed ...

The Wiener index found various applications including those in the structure-property-activity modelling [1, 3, 9, 13, 14] and has also been studied extensively. For a graph G with a vertex v of degree