

# Wiener Index Of A Graph And Chemical Applications

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### [Wiener Index Of A Graph](#)

#### 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 [www.nitt.edu](http://www.nitt.edu)

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

#### 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

#### 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

#### ON THE WIENER INDEX AND LAPLACIAN COEFFICIENTS OF ...

$n - 2$  is equal to its Wiener index, which is a sum of distances between all pairs of vertices Let  $m_k(G)$  be the number of matchings of  $G$  containing

exactly kindependent edges The subdi-vision graph  $S(G)$  of  $G$  is obtained by inserting a new vertex of degree two on each edge of  $G$  Zhou and Gutman [17] proved that for every acyclic graph  $T$  with

### 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

### 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

### 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  $2 \leq k \leq n$ , but the above definition

### 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

### 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  $(G, x) = \sum_{u, v \in V(G)} d(u, v) x^{d(u, v)}$  In this paper, we find the Wiener index and Hosoya polynomial of the line graphs of the wheel graphs using the

### Wiener Index of Some Graphs of Special Type

Keywords: Graphs, distance, degree, Wiener Index I INTRODUCTION AND PRELIMINARIES An important topological index of a molecular graph or more generally of a connected graph is termed as the Wiener Index (number) of the graph The well known Physico ...

### Wiener Index of Degree Splitting Graph of some Hydrocarbons

results obtained for the Wiener index of  $G$  and Wiener index of degree splitting of  $G$  are given in Table 1 We have calculated and tabulated the Wiener indices, Spectral radius, Energy level (for both  $G$  and  $DS(G)$ ) for acyclic hydro carbons The Wiener index of the molecular graph  $DS(G)$  of the 32 acyclic hydrocarbons with  $E$ , Table 1

### 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

### **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

### **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

### **Estimating the Wiener Index by Means of Number of Vertices ...**

Estimating the Wiener Index by Means of Number of Vertices, Number of Edges, and Diameter Kinkar Ch Dasa and Ivan Gutman<sup>a</sup>Department of Mathematics, Sungkyunkwan University, Suwon 440-746, Republic of Korea e-mail: kinkar@lycos.com

### **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 Simpson's Index is considered a dominance index because it