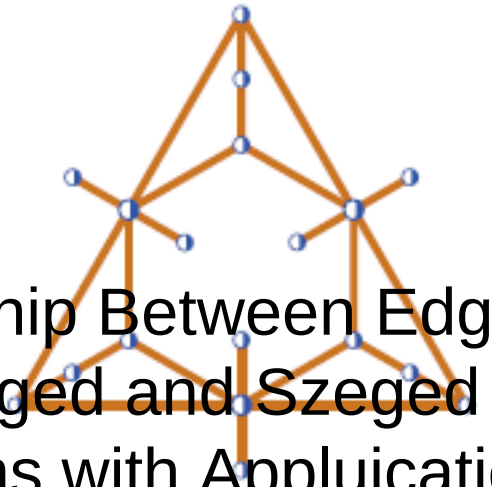
Bled'11 - 7th Slovenian International Conference on Graph Theory



Contribution ID : 15

Relationship Between Edge Wiener, Edge Szeged and Szeged Indices of Graphs with Appluications in Nanoscience

Content :

Suppose G is a graph, $w \in V(G)$ and $e = uv, f = ab \in E(G)$. Define $n_u(e)$ and $m_u(e)$ to be the number of vertices and edges lying closer to u than v, respectively. The quantities $n_v(e)$ and $m_v(e)$ are defined analogously. We also define $d(w, e) = min\{ d(w,u), d(w,v)\}$ and $d(e,f) = min\{ d(u,f), d(v,f)\}$. The edge Wiener, edge Szeged and Szeged indices of G are defined as follows:

$$\begin{eqnarray*}
W_e(G) &=& \sum_{\{ e,f \} \subseteq E(G)}D(e,f),\\
Sz_e(G) &=& \sum_{e=uv \in E(G)}m_u(e)m_v(e),\\
Sz(G) &=& \sum_{e=uv \in E(G)}n_u(e)n_v(e).
\end{eqnarray*}$$

In this talk some new results regarding the relationship between these topological indices are presented. We also apply our results to compute these topological indices for some classes of molecular graphs applicable in nanoscience.

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Session classification : --not yet classified--

Track classification : Mathematical Chemistry

Type : Oral presentation