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Revised and edge revised Szeged indices of graphs

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Abstract

The revised Szeged index is a molecular structure descriptor equal to the sum of products $[n_u(e) + n_0(e) / 2] \times [n_v(e) + n_0(e) / 2]$ over all edges $e = uv$ of the molecular graph G , where $n_0(e)$ is the number of vertices equidistant from u and v , $n_u(e)$ is the number of vertices whose distance to vertex u is smaller than the distance to vertex v and $n_v(e)$ is defined analogously. In this paper, new formula for computing this molecular descriptor is presented by which it is possible to reprove most of results given in [M. Aouchiche and P. Hansen, On a conjecture about the Szeged index, *European J. Combin.* **31** (2010), 1662–1666]. We also present an edge version of this graph invariant. At the end of the paper an open question is presented.

Keywords

Szeged index, edge Szeged index, revised Szeged index, revised edge Szeged index.

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Revidiran in povezavno revidiran Szegedov indeks grafov

Abstract

Revidiran Szegedov indeks je opisovalec molekularne strukture enak vsoti produktov $[n_u(e) + n_0(e) / 2] \times [n_v(e) + n_0(e) / 2]$ po vseh povezavah $e = uv$ molekularnega grafa G , kjer je $n_0(e)$ število vozlišč, enako oddaljenih od u in v , $n_u(e)$ je število vozlišč, katerih razdalja od vozlišča u je manjša od razdalje do vozlišča v , in $n_v(e)$ je definiran analogno. V tem članku je predstavljena nova formula za izračun tega molekularnega opisovalca, s katero je mogoče na novo dokazati večino rezultatov iz članka [M. Aouchiche and P. Hansen, On a conjecture about the Szeged index, *European J. Combin.* **31** (2010), 1662–1666]. Predstavimo tudi povezavno verzijo te grafovske invariante. Članek zaključimo z odprtim vprašanjem.

Ključne besede

Szegedov indeks, povezavni Szegedov indeks, revidirani Szegedov indeks, revidirani povezavni Szegedov indeks

