

## A NEW DESCRIPTION OF MOLECULAR CONSTITUTION: FROM PLATONIC SOLIDS TO MOLECULES

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Chemical graph theory is a branch of science that connects mathematical topology with chemical structural theory. It is applied to study the relationships between the main components of molecular structures: the number of vertices, the number of edges, and the number of rings in polycyclic molecules. These relationships form the basis of the IUPAC nomenclature for polycyclic hydrocarbons. To some extent, this approach is a corollary of Euler's formula regarding the number of vertices, edges, and faces.

However, to gain deeper insight into the problem of molecular structure - particularly the relationship between molecular constitution and configuration - the graph theoretical approach to polycycles has been expanded with new definitions of rings and bridges. This expansion simplifies the enumeration of edges and vertices: the number of edges is now the sum of the number of bridges and the number of vertices.

It is demonstrated how this approach is generally valid and how it provides additional knowledge about molecular complexity.