A new topological index (quadratic index Q)

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The total number of paths $\Sigma\, p_i$ for all i values in graphs is an invariant with very low degeneracy. It can be converted into a new molecular descriptor (*quadratic index Q*) by means of the *cyclomatic number* μ according to the following formula:

$$Q = (\Sigma_i\, p_i / \mu)^2$$

Correlations for normal points of alkanes, cycloalkanes and bicycloalkanes are presented. Although Q is an integer (first generation topological index), it presents a very low degeneracy.