

# On Atom-Bond Connectivity Index

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The atom-bond connectivity (ABC) index, introduced by Estrada et al. in 1998, displays an excellent correlation with the formation heat of alkanes. We give upper bounds for this graph invariant using the number of vertices, the number of edges, the Randić connectivity indices, and the first Zagreb index. We determine the unique tree with the maximum ABC index among trees with given numbers of vertices and pendant vertices, and the  $n$ -vertex trees with the maximum, and the second, the third, and the fourth maximum ABC indices for  $n \geq 6$ .

*Key words:* Atom-Bond Connectivity Index; Randić Connectivity Indices; First Zagreb Index; Trees.