

# The Energy of a Graph and its Size Dependence.

## An Improved Monte Carlo Approach

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In an earlier work [Gutman et al., Chem. Phys. Lett. **297**, 428 (1998)] the average energy  $\langle E \rangle$  of graphs with  $n$  vertices and  $m$  edges was examined, in particular its dependence on  $n$  and  $m$ . The quantity  $\langle E \rangle$  was computed from a set of randomly, but not uniformly, constructed  $(n, m)$ -graphs. We have now improved our method by constructing the  $(n, m)$ -graphs uniformly, so that every  $(n, m)$ -graph has equal probability to be generated. Differences between the old and new approaches are significant only in the case of graphs with a small number of edges.

*Key words:* Energy (of Graph); Total  $\pi$ -electron Energy; Random Graphs; Monte Carlo Methods.