

[P3] Statistical Mechanics of Undirected Unlabeled Connected Graphs

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We generate all of the connected undirected unlabeled graphs up to $N \leq 12$. We calculate the sum of non-negative eigenvalues of each graph. We consider this sum as the energy of a given graph and may correspond to Hückel molecular orbital theory. We study the thermodynamic properties of the graphs within microcanonical ensemble figuratively.