Distribution of internal links of the polymer chain in self-avoiding random walks statistics

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Within the frame of self-avoiding random walks (SARW) statistics the derivation of the internal n-link ($1 \ll n \ll N$) distribution of the polymer chain regarding to the chain ends is offered. The analysis of the obtained expressions shows that the structure of the conformational volume of the polymer chain is heterogeneous; the largest density of the number of links takes place in conformational volumes nearby the chain ends. It can create the effect of the blockage of the active center of the growing macroradical and become apparent as linear chain termination. The equation for the most probable distance between two internal links of the polymer chain was obtained as well. The polymer chain parts, separated by fixing of the internal links, are interactive subsystems. Their total conformational volume is smaller than the conformational volume of the undeformed Flory ball. Respectively, the total free energy of the conformation of the chain parts is equal to the free energy of the conformation of the deformed (i.e. compressed till the total volume of the chain parts) Flory ball.