Scaling Migdal Hypotheses and a Nonparametric Equation of State Based on It

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A nonparametric equation of state (*NEOS*) for matter is investigated in this work. It is considered a methodical approach that is connected with some correlation between *NEOS* and a scaling Migdal equation of state [1]. We have installed the structure of the *NEOS* and used additional functions that depend on physical arguments: the density (*r*) and the temperature (*T*)). Additionally, we have used a methodical approach that is connected with a correlation between the *NEOS* and the Benedek hypothesis [2]. It is elaborated as a variant of *NEOS* that is based on experimental data for argon. This input massive has included values, the densities on the saturation line, and *p,r,T*-data. We have identified an area of *NEOS* applicability. It is 0.67 r/r_c to 1.22 in the density; it is 0.997 T/T_c to 1.08 in the temperature. It is shown that the number of freely varying NEOS parameters has been reduced by one in comparison with the traditional LM parameters search [3].

References:

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[2]. Kudryavtseva I.V., Rykov S.V. *Russ. J. Phys. Chem.* A **90** 1493-1495/
[3]. Lysenkov V F, Rykov V A 1991 *High Temp.***29** 1236-1238.