

## Physico-chemical nanomaterials science

### The radii and the temperature range of existence of clusters in liquid metals

**S.S. Lugovskiv<sup>1</sup>, V.A. Tatarenko<sup>1</sup>, V.S. Kharchenko<sup>1</sup>, I.M. Melnyk<sup>1</sup>**

<sup>1</sup> Department of Solid State Theory, G. V. Kurdyumov Institute for Metal Physics of the N.A.S. of Ukraine. 36 Academician Vernadsky Boulevard, UA-03680 Kyiv-142, Ukraine.  
E-mail: sergeykpi@mail.ru

According to the quasi-polycrystalline theory of liquid state developed in [1] we estimated the clusters' radii for the following liquid metals according to the available data [2, 3]. We estimated clusters' radii for given  $p$ - $T$  range: for Cs  $r_{\text{clust}} = 5,18 \text{ \AA}$  at  $T \in [550; 1573] \text{ K}$ ,  $p \in [170; 3,56 \cdot 10^6] \text{ Pa}$ ; for K  $r_{\text{clust}} = 5,81 \text{ \AA}$  at  $T \in [643; 1573] \text{ K}$ ,  $p \in [237; 2,65 \cdot 10^6] \text{ Pa}$ ; for Li  $r_{\text{clust}} = 4,63 \text{ \AA}$  at  $T \in [473; 793] \text{ K}$ ,  $p \in [0,13; 9 \cdot 10^5] \text{ Pa}$ ; for Na  $r_{\text{clust}} = 36,5 \text{ \AA}$  at  $T \in [373; 853] \text{ K}$ ,  $p \in [2 \cdot 10^{-5}; 2440] \text{ Pa}$ ; for Na  $r_{\text{clust}} = 5,18 \text{ \AA}$  at  $T \in [800; 1300] \text{ K}$ ,  $p \in [929; 3,26 \cdot 10^5] \text{ Pa}$ .

The method for estimating the temperature of full disorder offered in [4] was developed. Using the developed method we found following  $T_{\text{dis}}$  for the next liquid metals: 1000 K for Cs, 950 K for Ga, 1000 K for In, 850 K for K, 1100 K for Li, 950 K for Na, 650 K for Rb, 640 K for Hg, 760 K for Bi respectively.

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