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# The Long-Wavelength Limit of the Bhatia – Thornton Structure Factor "Concentration – Concentration" in Liquid K-Rb

**Natalia D. Vatolina**

Ural Federal University, Mira st. 19, 620002 Ekaterinburg, Russia
ndvatolina@gmail.com



**Abstract**

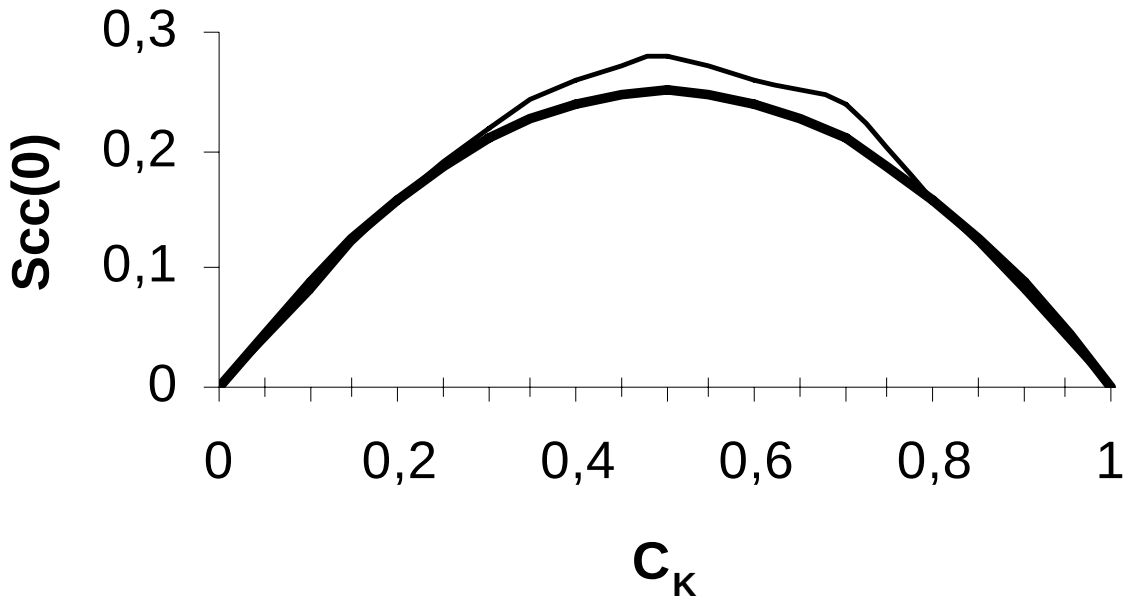
The concentration dependency of the Bhatia-Thornton structure factor "concentration - concentration" in the long-wavelength limit for liquid system K-Rb is calculated by using the variational method in conjunction with the pseudopotential one. Theoretical results predict the absence of tendencies to the phase separation or to strong association in the alloy under consideration.

**Keywords:** Bhatia-Thornton structure factors, K-Rb liquid alloy, pseudopotential theory, variational method

The concentration dependency of the Bhatia-Thornton [1] structure factor "concentration - concentration", $S_{cc}(q)$, in the long-wavelength limit is calculated for the liquid system K-Rb at $T$=373K by means of the variational method [2] of the thermodynamic perturbation theory and pseudopotential method using the local Animalu-Heine [3] model pseudopotential and the Vashishta – Singwi [4] exchange–correlation function. Recently, this method was used for analogous study of the Na-K liquid system [5].

There are not experimental data for $S_{cc}(0)$ of liquid K-Rb. We compare our results with that obtained by semi-empirical method in work [6] (Fig.1). Both theoretical results show that the system under consideration has not the tendency to the phase separation or to strong association.

**Figure 1.** $S_{cc}(0)$ of liquid K-Rb at *T*=373K (bold full line – our result; full line – theoretical result [6]).

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