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Dynamic scaling invariance at low temperatures VLADIMIR UDODOV, Katanov Khakas State University, KATANOV KHAKAS STATE UNIVERSITY TEAM — Using thermodynamic arguments we prove that the conventional consequences of the dynamic scale hypothesis change their character in the limit as the critical temperature T_c approaches zero. In particularly, for liquid helium-4, the critical exponent α associated with the heat capacity (α <0) and other exponents related by the following new relation

$$\nu(z-1) = (1 + S_I - \alpha)/6 \ , \quad T_C = T_\lambda \geq 0 \ , \tag{1}$$

$$S_I = \left(\frac{T_C}{T}\right)^n \ , \quad T \geq T_C \quad , \tag{2}$$

where n is a positive constant [1] and z is the dynamic critical exponent, ν – the critical exponent of the correlation length. It is important that now the exponent z depends on T and T_λ. If T_λ =0 and T>0, then the S_I-function [1] is zero and Eq. (**??**) becomes

$$\nu(z-1) = (1-\alpha)/6 \ , \quad T_C = 0, \ \ (T > 0, \ \ \alpha < 0) \ . \tag{3}$$

Eq. (**??**) can be applied, for example, to a mixture of liquid He^3 and He^4. The results are valid for multi-component order parameter. 1. Udodov V. Violating of the Essam-Fisher and Rushbrooke Relationships at Low Temperatures// World Journal of Condensed Matter Physics. — 2015. — .5. — 2. — . 55-59. http://dx.doi.org/10.4236/wjcmp.2015.52008.

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