Abstract Submitted
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The dynamic critical exponent y for superfluid helium near absolute zero VLADIMIR UDODOV, Katanov Khakas State University — We propose a new interpolation formula for the dynamic critical exponent y for the mixture of liquid He^4 and He^3 at low temperatures:

$$y = (1 + S_I - \alpha)\left(\frac{1}{d} + \frac{1}{6}\right) \quad , \tag{1}$$

where d is the space dimension. In the case of d =3, it takes the form

$$y = z\nu = \frac{3\nu}{2} = \frac{1 + S_I - \alpha}{2}\,(\,T_C \geq 0,\ \alpha < 0)\,, \tag{2}$$

where

$$S_I = \left(\frac{T_C}{T}\right)^n ,\ T > T_C = T_\lambda \ , \tag{2}$$

n is some positive constant [1], z is the dynamic critical exponent and ν is the critical exponent of the correlation length. New formulas apply not only to positive critical temperatures but also to the limiting case $T_C \to 0$, which realizes in a mixture of liquid helium isotopes. The results can be applied to the systems with multicomponent order parameter, when the thermodynamic potential depends on the sum of the squares of the components. Examples include Heisenberg ferromagnets and systems undergoing quantum phase transitions. 1. *Udodov V.N.* New consequences of the static scaling hypothesis at low temperatures. Physics of the Solid State. 2015. . 57. 10. . 2073-2077. DOI: 10.1134/S1063783415100340.

Vladimir Udodov
Katanov Khakas State University

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