

HEAT CAPACITY AND THE SHIFT  
OF THE CRITICAL TEMPERATURE  
IN CONFINED LIQUIDS

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S u m m a r y

An analytical expression for the heat capacity of confined one-component liquid in its critical region has been obtained, and a new value of the critical temperature, which corresponds to the maximum of the heat capacity of such liquid, has been determined. The obtained results have been applied to the studies of the influence of the system confinement on the specific heat of  $\text{He}^4$  in the vicinity of its  $\lambda$ -point. The relevant experimental results, obtained under the microgravitation condition during the flight of the Space Shuttle in 1997, were taken as a reference point. The problem of competition between two effects, the gravitation and finite-size ones, on the critical temperature of the confined system has been considered. Theoretical estimations of those two factors, when calculating the temperature shift of the  $\lambda$ -transition point in  $\text{He}^4$ , give rise to results of the same sign and quite close by the absolute value.