

FEATURES OF THE CONFINED HELIUM ^4He
SPECIFIC HEAT NEAR THE λ -POINT
IN THE PLANE MESOSCALE PORES

K.A. Chalyy

Taras Shevchenko Kyiv National University,
Faculty of Physics
(6, Academician Glushkov Prosp., Kyiv 03022, Ukraine;
e-mail: kirchal@univ.kiev.ua)

S u m m a r y

The influence of the finite-size effect on the liquid helium specific heat and a shift of the transition temperature are theoretically examined for the case of planar confinement. A considerable growth of the specific heat manifests itself at a new transition temperature which is calculated in the context of the present geometric conditions. The analytic results are found to be in fair agreement with a number of experiments where ^4He films were ranged in thickness from 48 nm to $57\ \mu\text{m}$ that can be referred as the mesoscale values. The contributions to the shift of the transition temperature caused by the gravitation effect and by the finite-size effect are examined.