

MICROSTRUCTURE OF He II
IN THE PRESENCE OF BOUNDARIES

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S u m m a r y

We have studied the microstructure of a system of interacting Bose particles under zero boundary conditions and have found two possible orderings. One ordering is traditional and is characterized by the Bogolyubov dispersion law $E(k) \approx \sqrt{\left(\frac{\hbar^2 k^2}{2m}\right)^2 + qn\nu_3(k)\frac{\hbar^2 k^2}{m}}$ ($q = 1$) at a weak interaction. The second one is new and is characterized by the same dispersion law, but with $q = 2^{-d}$, where d is the number of noncyclic coordinates. At a weak interaction, the ground-state energy is less for the new solution. The boundaries affect the bulk microstructure due to the difference of the topologies of closed and open systems.