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Energy and angular momentum densities of states of ripplons on the surfaces of helium nanodroplets and bubbles[1] VITALY KRESIN, MICHAEL JOHNSON, University of Southern California, KLAVS HANSEN, Gothenburg University — We present an analytical evaluation of the statistical densities of states of surface excitations (ripplons) of (1) isolated liquid-drop helium nanoclusters and (2) large multielectron bubbles in bulk liquid helium [1]. For the former case, the calculation of the energy density of states, $\rho(E)$, can be accurately performed in a microcanonical ensemble formalism [2] and yields an expression which is extremely close both to the exact numerical calculation and to its fitted form [3]. For case (2) the canonical ensemble formulation is appropriate. For both systems, the calculation is then extended to yield the energy- and angular-momentum- resolved density of states $\rho(E, L)$ (c.f. [3]); in other words, the ripplon moment of inertia is described.

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[3] K.K.Lehmann, J.Chem.Phys. **119**, 3336 (2003).

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