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Magnetism of a multielectron bubble in liquid helium JACQUES TEMPERE, Universiteit Antwerpen, ISAAC F. SILVERA, Harvard University, JOZEF T. DEVREESE, Universiteit Antwerpen — Multielectron bubbles are cavities in liquid helium containing electrons. A typical N=10000 electron bubble is forced open by the Coulomb repulsion of the electrons, balanced by the surface tension of the helium, leading to a typical radius of 1 micron. The electrons in the bubble form a spherical two-dimensional electron gas (S2DEG): they collect in a nanometer thin layer anchored to the in inner surface of the bubble. We investigate the properties of this S2DEG, both for weak and strong magnetic fields. Already at a few tens of gauss, typical multielectron bubbles enter the strong-field regime where the single-particle energy levels arrange themselves in Landau bands of doubly degenerate levels in stead of highly-degenerate Landau levels.

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