Abstract Submitted
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Lande's g values and the quantum Hall effect KESHAV SHRIVASTAVA, University of Hyderabad — It is reported that the Lande's formula for the g values of the electron as a function of L, S and J does not have the particle-hole symmetry needed for the understanding of high magnetic field data of quantum Hall effect. Hence it is modified to yield the particle-hole symmetry by means of the two signs before S in J= L±S. The correct g value is then given by g=(2J+1)/(2L+1). Since the Bohr magneton involves the charge of the particles, the corrected g value formula explains the data of quantum Hall effect. The value L/2L+1 gives 1/3 and (L+1)/(2L+1) gives 2/3. The consideration of Landau levels gives many values in agreement with the data. In electron clusters the spin need not be $1/2$. Hence a lot of data is explained by means of spin greater than $1/2$. Some of the clusters show the formation of spin waves so that there is a finite spin deviation which is characteristic of electron lattices. It is found that Laughlin's wave function is the ground state of $\nabla^2\delta(r_i - r_j)$ type Hamiltonian which is not equivalent to Coulomb's Hamiltonian. K. N. Shrivastava, Intl. J. Mod. Phys. B 25, 1301-1357(2011).

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