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Jahn-Teller distortion of the Wigner molecule in a three-electron quantum dot and a magnetic field: pair function approach M. TAUT, H. ESCHRIG, M. RICHTER, Leibniz Institute for Solid State and Materials Research, Dresden, Germany — We considered a two dimensional three electron quantum dot in a magnetic field in the Wigner limit. Using a unitary coordinate transformation of the Hamiltonian (with Coulomb interaction between the electrons included) into a sum of pair Hamiltonians, and the Pauli principle for the resulting product of pair functions, we have shown that the three electrons in the ground state of the Wigner molecule form an equilateral triangle (as expected from naive reasoning) only, if the state is a quartet (S=3/2) and the orbital angular momentum is a magic quantum number L=3 m, (m=0,1,2,...). Otherwise the triangle is isosceles. For L=3 m+1 one of the sides is longer and for L=3 m-1 one of the sides is shorter than the other two.

M. Taut
Leibniz Institute for Solid State and Materials Research, Dresden, Germany

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