**The total magnetic moment of large atoms in strong magnetic fields**

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We look at the magnetisation of neutral atoms in large magnetic fields. Asymptotic formulas for the energy exist with high precision in different regions depending on how large the nuclear charge $Z$ is compared to the magnetic field strength $B$. All these formulas take the splitting of the kinetic energy into Landau levels as the principal feature and then treat the electric potential as a perturbation. We prove that these approximate formulas predict correctly (to highest order) the total magnetic moment of the atom. The proof of this fact relies on a "virial theorem" for Coulomb systems in a constant magnetic field.