Project 2

Amund Midtgård Raniseth Anna Stray Rongve
Knut Magnus Aasrud

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Introduction

Theory

Some headline

As long as two electrons has opposite spin, they can exist in the same state. Their energy is given by

$$\epsilon_{n_x,n_y} = (n_x + n_y + 1)\omega$$

The energy of the ground state for two electrons without interaction, is simply the sum of the energies: $\epsilon_{n_x,n_y} = 2 \times (0 + 0 + 1) = 2\omega$.

The wavefunction for the unpartubated stystem is given by

$$\Phi(\mathbf{r_1}, \mathbf{r_2}) = C \exp\left[-\frac{\omega}{2}(\mathbf{r_1}^2 + \mathbf{r_2}^2)\right]$$

where $\mathbf{r_i} = \sqrt{ri_x{}^2 + r_{i_y}^2}$. The total spin in the ground state is simply zero as the two electrons living in the state is pared with opposite spins (eg. $\pm 1/2$).

Method

Results

Discussion

Conclusion

Appendix