
Physics with neutrons 2

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Exercise sheet 1

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EXERCISE 1.1

Estimate the energy scale of the magnetic interaction for

- two electrons,
- an electron and a neutron,
- an electron and a nucleus (for example Cu), and
- a neutron and a nucleus (for example In).

The respective particles are supposed to have a distance of 1 \AA .

EXERCISE 1.2

1. With which part of matter interact neutrons and photons, respectively? What are the differences between light and neutron scattering?
2. What gives rise to coherent / incoherent scattering? Which information can be extracted from each of them?
3. Recall the most important facts about the structure factor $|S|^2$ and the form factor $|F|^2$.