task_8a117vmnbbmsbfz3_with_calculation

Student Group

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magnetostatic, magnetic field lines, exam ee2 SS2024

Exercise E1 Magnetic Field Lines
(written test, approx. 6 % of a 120-minute written test, SS2024)

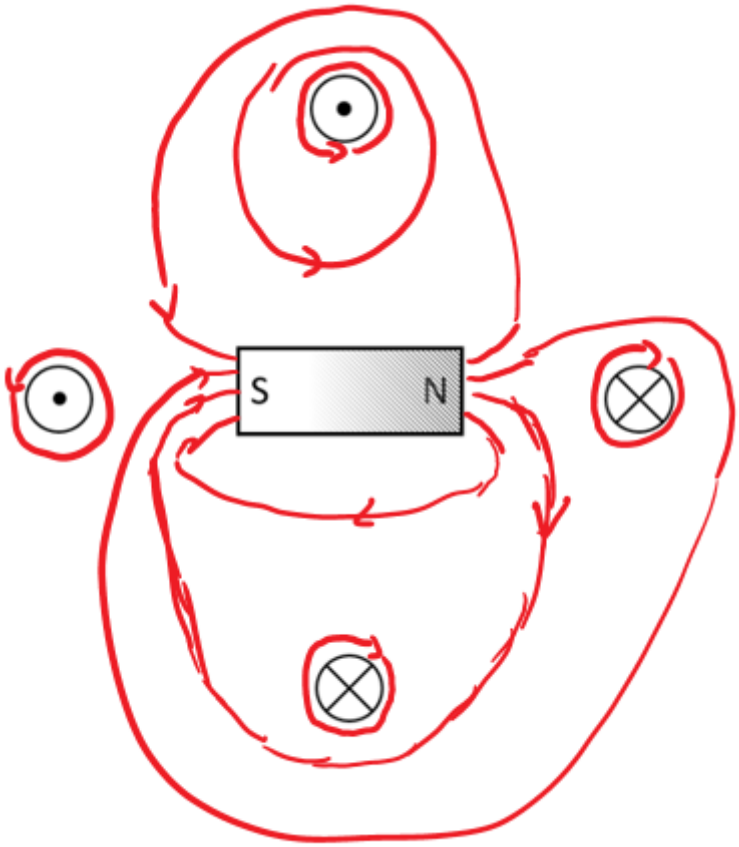
2. Discuss how the permanent magnet affects the H-field, based on the fundamental definition of the H-field.

The following setup shall be given:

- Four conductors are located perpendicular to the plane of the diagram
- All of them conduct a current with the same magnitude, but not in the same direction.
- A permanent magnet is located in between the conductors.

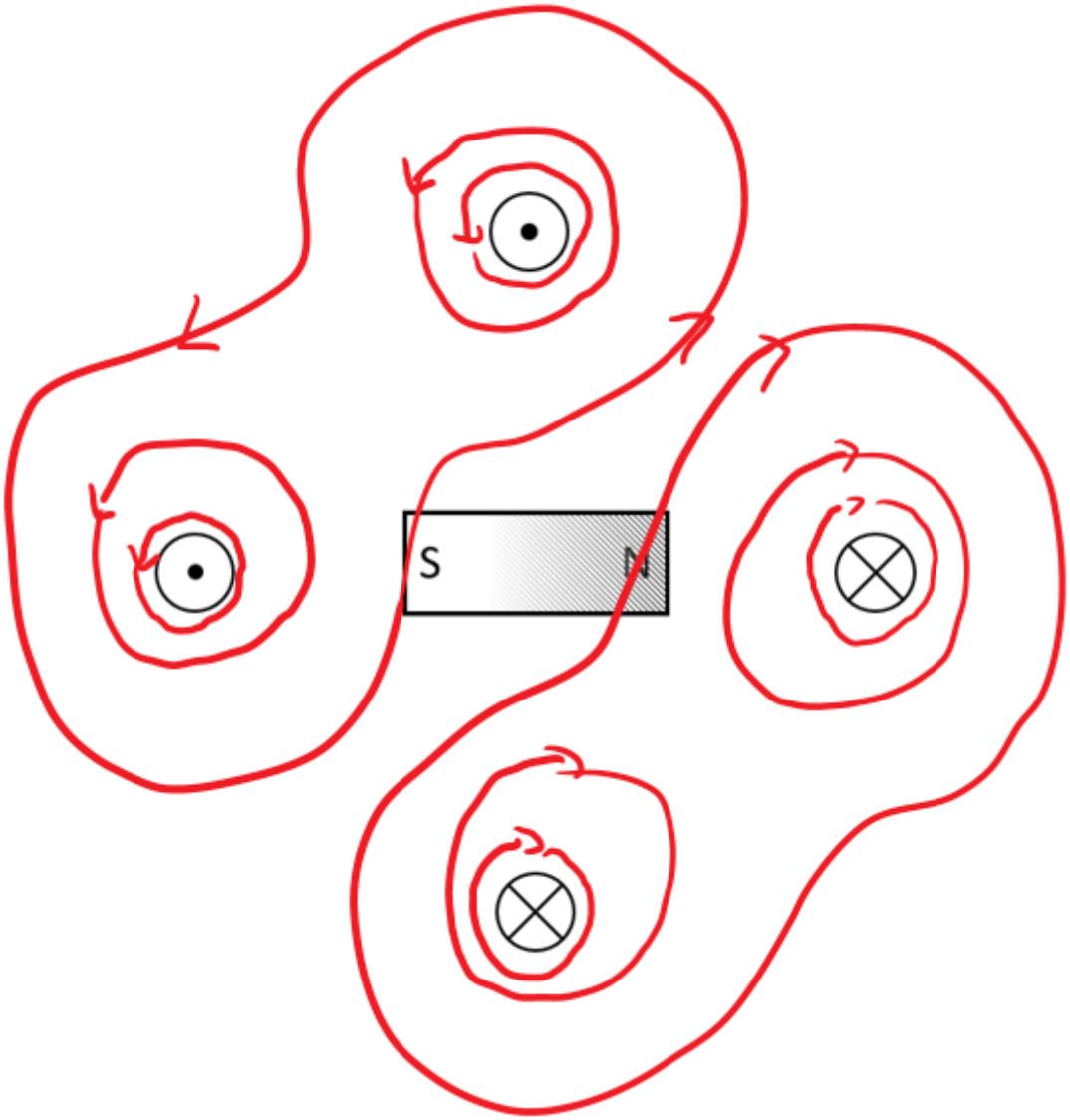
Result

- The H-field is defined by currents $\sum I = \int H {\rm d}s$.
- In the permanent magnet, there are no free currents.
- The bound currents (of the permanent magnet) create also an H field.
- This exits on the north pole and enters the magnet on the south pole (similar to the B-field)_
- $H = B/\mu$
- The H-field from task 1 gets distracted



1. D … st 10 field lines of the H-field
qua … and density for the shown
area

Res



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