Source: [[KBPhysicsMasterIndex]]

1 | Magnetic Solids

Diamagnetic Fields

- Contents induced that travels in the opposite direction of the material
- These “magnets” will repel permanent magnets when there is a meaningful magnetic field is applied
- Every material intrinsically has a diamagnetic property

Paramagnetic Fields

- Each atoms have “unpaired electrons” — electrons are oriented at a random spin
- When a magnetic field is applied, the electrons align with the direction of the magnetic field.
- Upon removal of the magnetic field, the electrons get randomly spun again

Ferromagnetic Fields

- Unpaired electrons already partially align to each other
- Each block of aligned electron is called a “domain”
- After applying a field, heat the material up ⇒ you get aligned domains! You end up with a permanent magnet
- Heating the magnet above currie temperature again will destroy the magnet

Earth field generated by having a fluid core and spinning reasonably quickly.