How Magnets work: An alternative explanation

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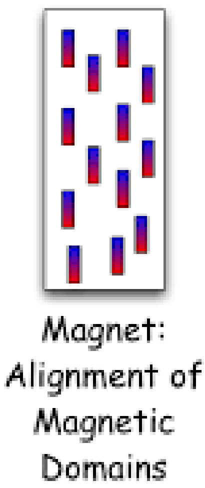
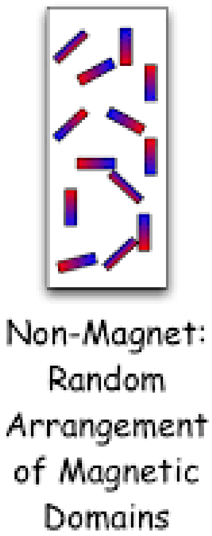
Question: What happens when you heat up then cool down a magnetized ferromagnetic metal?

Standard explanation

When a magnetized ferromagnetic metal is heated to the Curie point temperature, the molecules are agitated to the point that the magnetic domains lose the organization and the magnetic properties they cause cease. When the material is cooled, this domain alignment structure spontaneously returns as the material develops its crystalline structure.





(Credit: Google images)

Alternate explanation

When a magnetized ferromagnetic metal is heated to the Curie point temperature, the electrons are ejected from the metal thus the magnetic properties they cause cease as no photons are able to be released inside the metal.

When the metal is cooled, the electrons have insufficient energy to escape the metal. The once excited-electrons consequently drop back to their ground states and in doing so release a photon of EMR which travels the length of the metal. The photon's wave form is then subsequently inverted and reflected back along the metal. The electrical field component of the photon's wave form destructively interfere (cancel out) on reflection and hence cannot be measured or detected. The magnetic component of the photon's wave form interfere coherently (additively) thus re-establishing the magnetic field of the metal.

In non-ferromagnetic metals when their electrons are excited they will jump energy levels and will then eventually drop back to their ground states releasing a photon of EMR. The photon's wave form will consequently reflect but **does not** invert (possibly due to the density of the metal) thus both the magnetic and the electrical wave components of the incident and reflected wave forms both destructively interfere. Thus the metal remains non-ferromagnetic and no electrical field (current) is able to be detected in the metal.

Magnetic metals

Iron: 7.87 g/cm^3

Nickel: 8.9 g/cm^3

Cobalt: 8.9 g/cm^3

Gadolinium: 7.9 g/cm^3

Dysprosium: 8.55 g/cm^3

Ideal density for a ferromagnetic metal: 7.85 to 8.9 g/cm^3

Non-magnetic metals

Aluminium: 2.7 g/cm^3

Copper: 8.96 g/cm^3

Lead: 11.34 g/cm^3

Zinc: 7.13 g/cm^3

Silver: 10.49 g/cm^3

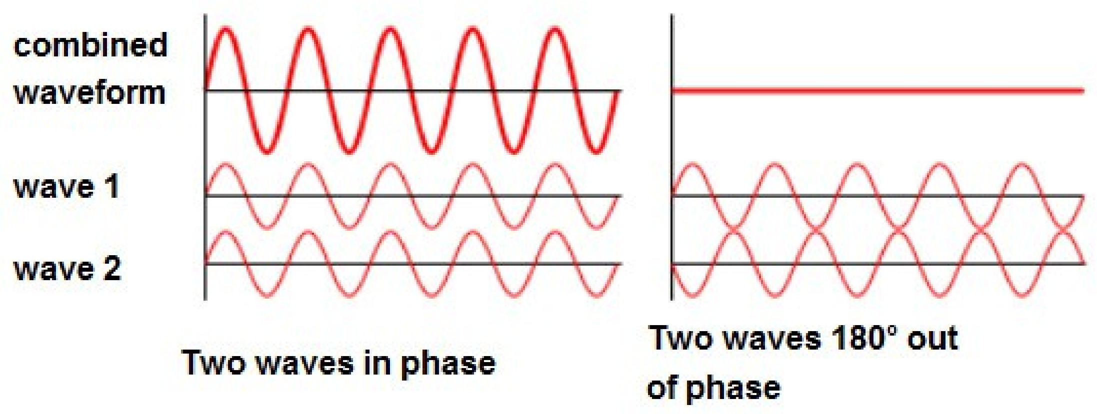
Gold: 19.32 g/cm^3

Manganese: 7.43 g/cm^3

Question: Why does a permanent magnet become demagnetised when hit with a hammer?

When you hit the metal with a hammer the longitudinal sound wave which is created destructively interferes with the transverse photon waves. Thus the permanent magnet effectively is turned off ie is now de-magnetised.

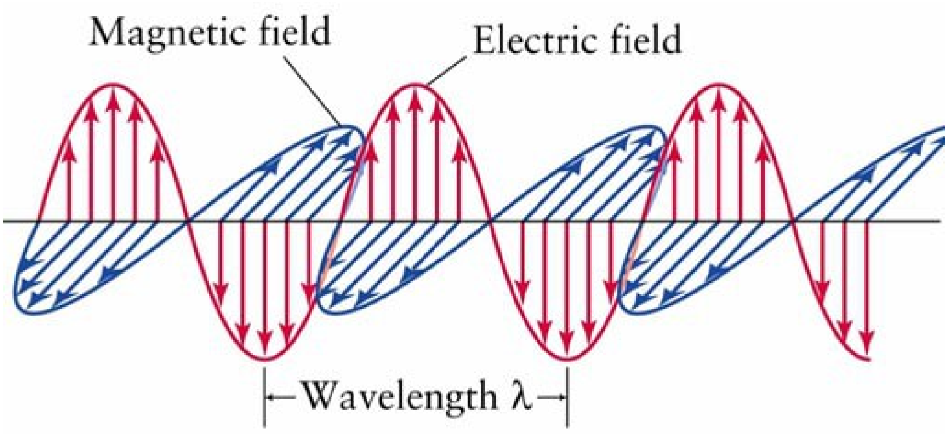
The idea is that when two waves encounter each other, they will “superimpose” their characteristics upon one another, creating a new wave that is a combination of the two original. The figure below shows the two extremes of superposition; 1) If the two waves are “in-phase” they add together, creating a larger amplitude wave, and 2) If the two waves are “out-of-phase” they subtract from one another, completely eradicating both original waves.

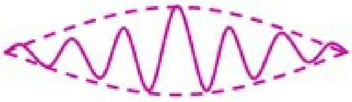


Magnetic field waves **Electric field waves**

(Credit: Goggle images diagrams above and below)

(Note: wave 1: incident photon wave form
wave 2: reflected photon wave form)





$$E=h\nu$$

Wave Packet vs. Continuous beam/ray/wave