Content

Extended Coulomb force

The extended Coulomb force unifies the Lorentz force and magnetism in one single more general law. This is described in our Chapter 5. Unifying Lorentz force and Magnetism - extended Coulomb force.

Here we demonstrate that all known experiments involving magnetism and/or the Lorentz force can be explained and equally well calculated with this new formula.

The whole concept of magnetism is hereby obsolete and should simply be considered as intermediate step to calculate or imagine special circumstances more easily.

Extended Coulomb force formula

The Lorentz force can be defined between 2 particles with charges q_1 and q_2 as

$$\vec{F_1} = \frac{q_1 q_2}{4\pi\varepsilon_0 |\vec{\Delta r}|^3}(\vec{\Delta r} + \frac{\vec{\Delta v}}{c^2} \times (-\vec{\Delta v} \times \vec{\Delta r}))$$

Accordingly the total force on one particle with charge q_1 can be defined as resulting force of interaction with all other relatively moved charged particles q_2 .. q_n as

$$\vec{F_1} = \sum_{n=2}^{\infty} \frac{q_1 q_n}{4\pi\varepsilon_0 |\vec{\Delta r}|^3}(\vec{\Delta r} + \frac{\vec{\Delta v}}{c^2} \times (-\vec{\Delta v} \times \vec{\Delta r}))$$

where

$$\varepsilon_0 = \frac{10^7}{4\pi c^2}$$

$$\vec{\Delta v} = \vec{v_1} - \vec{v_n}$$

$$\vec{\Delta r} = \vec{r_1} - \vec{r_n}$$