

PHYS 2326 Notes

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1 Electric Charge

- Electric Charge
 - Plastics, fur, amber all demonstrate electrostatics
 - * 2 rods rubbed become - charged
 - * Fur depleted of e^- (+ charged)
 - * Glass opposite on silk
 - Molecules in plastic polarize in comb through hair
 - * Polarized; Electrons orient all to one side
 - 1 Coulomb = 1 unit of charge
 - $F \propto \frac{|Q_1 Q_2|}{r^2} * k * \alpha$
 - * $Q_1 Q_2$ are charges, r is distance
 - * Quadrant 1, + sign, Quadrant 2, - sign
 - * $k = \frac{1}{4\pi\epsilon_0} = 8.99 * 10^9 \frac{N*m^2}{C^2}$
 - ϵ_0 is permittivity constant = $8.85 * 10^{-12} \frac{C^2}{N*m^2}$
 - * k is dimension of r (+/-) aka unit vector
- Conservation of Charge
 - Neutrons decay into proton and e^- outside nucleus
 - Charge overall still conserved ($1-1 = 0$)
 - * Same coulombs
 - * $e^- = -1.6 * 10^{-19}C$

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