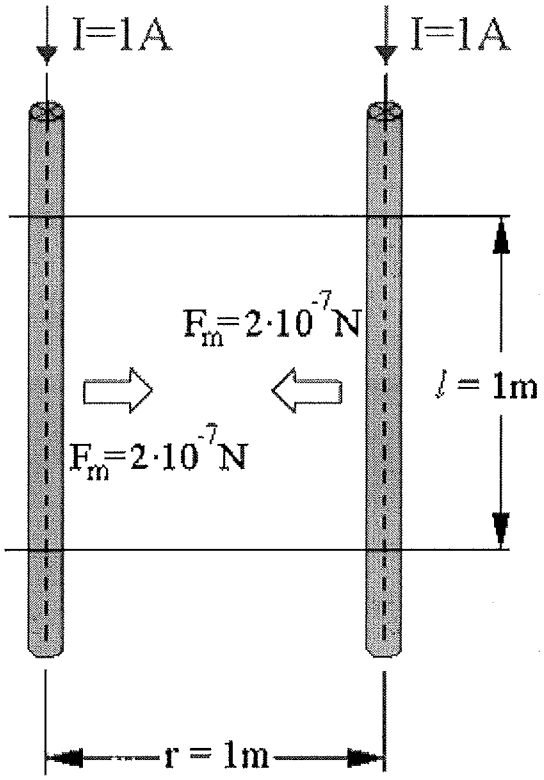
Physics 12 Section 20-7
Definition of the Ampere and the Coulomb

1. The Ampere is defined as that current flowing in each of two long parallel conductors 1m apart, which results in a force of exactly 2 x 10^{-7} N/m of length of each conductor.



$$F_1 = \frac{\mu_o I_2 I_1 l}{2\pi r}$$

$$\frac{F_1}{l} = \frac{(4\pi \times 10^{-7} Tm/A) \times (1A) \times (1A)}{2\pi \times 1m}$$

$$\frac{F}{l} = 2 \times 10^{-7} N/m$$

2. The definition of the Coulomb follows from the definition of the Ampere. 1 Coulomb is 1 ampere second or one Ampere is one Coulomb per Second.