ELECTRIC CHARGE AND FORCE

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Supplementary Material for PHY1308 (General Physics - Electricity and Magnetism)
• Homework 0:
  • Due next Monday by 8pm
  • Submit using Blackboard (courses.smu.edu)
    - there is an assignment called “Homework 0”

• First official in-class Quiz
  • Next Thursday
  • Bring pens/pencils and calculator
  • Based on Homework 0
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- Benjamin Franklin
- Language to Math
- Attractive Balloon
- Beam Tree!
- Shocking stuff
- Augustin-Charles de Coulomb
- Coulomb’s Law
Benjamin Franklin

1706-1790

Experimented with electricity around the 1750s.
"The total electric charge in any system is equal to the algebraic sum of the individual charges that make up the system."
DEMONSTRATIONS

- Van de Graaf generator
- Candle and Capacitor
ATTRACTION BALLOON

- In-class demonstration of electric charge using a balloon
- PhET simulation of the same process

http://phet.colorado.edu/en/simulation/balloons
BEAM TREE!
http://www.youtube.com/watch?v=-Qq7U7tFsvQ
CHARLES-AUGUSTIN DE COULOMB

Born/Died in France
1736-1806

First presented his work on electricity and magnetism in 1785

(this work was ongoing just a few years after the end of the American Revolution and a few years before the start of the French Revolution)
Coulomb's Law

\[ \vec{F}_{12} = \frac{k \cdot q_1 \cdot q_2}{r^2} \hat{r} \]

Tells you the force that charge 1 (the "source charge") exerts on charge 2: