



Sometimes (unfortunately), a bit of physics is needed for chemistry



When a balloon is rubbed on its hair and then placed on a wall, it remains “stuck” to the wall. This simple experiment demonstrates a non-gravitational interaction between the wall and the balloon after it has lost its electro-neutrality by being rubbed.

Coulomb's Law for electrostatics

Two charged bodies A(q_A) and B(q_B), located at a distance AB from each other, exert an electrostatic interaction on each other.

This interaction can be modeled by a force whose expression, known as Coulomb's law (1785), is written:

$$\begin{array}{c} \text{in newtons N} \\ \overbrace{\mathbf{F}_{A/B}} \\ \mathbf{F}_{A/B} = \mathbf{F}_{B/A} = \end{array} \left| \begin{array}{c} \text{in coulombs (c)} \\ k \frac{\overbrace{q_A q_B}}{\underbrace{AB^2}_{\text{in m}}} \end{array} \right|$$

Note: In vacuum, $k = 9.0 \times 10^9 \text{ SI}$

Electrostatic interaction can be repulsive, if the charges are of the same sign, or attractive, if the charges are of opposite signs.

