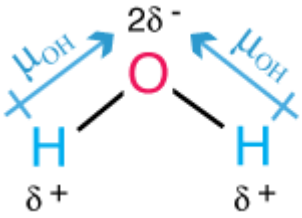
Answer on Question #76885, Chemistry / General Chemistry

When NaCl dissolves in water, aqueous Na+ and Cl- ions result. What is the name of the force of attraction that exists between Na+ and H2O?

Solution

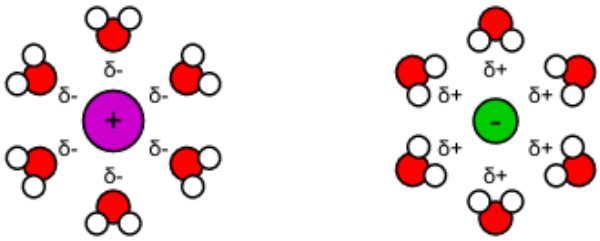
When NaCl is added to water the process of dissolution takes place. NaCl has an ionic crystal structure. Water molecules are polar molecules (have negatively and positively charged sides):



When water molecules come to the ionic crystal of NaCL (that have positively charged ions of Na^+ and negatively charged ions of Cl^-) , they turn to positively charged ions of Na^+ with their negatively charged side and turn to negatively charged ions of Cl^- with their positively charged side.

The force of attraction between Na^+ and water molecules, Cl^- and water molecules is ion-dipole interaction that has electrostatic nature. The crystal structure is broken. Hydrated ions are formed:

$NaCl(s) + H_2O \rightarrow Na^+(aq) + Cl^-(aq)$



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