

## **Specific ion effects on on aqueous solution properties of macromolecules**

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Ions play a vital role in determining the properties of many soft matter systems. Although electrostatic interactions between ions and charged residues on biomolecules, polyelectrolytes, etc. can be described with simple laws when the distance separating the charges is large, many interesting and unexplored phenomena occur owing to local interactions at the atomic scale. In my talk, I will discuss some of these phenomena, including ion pairing in water, salt-induced hydrophobic collapse of thermo-responsive polymers in water, and “switching” of polyelectrolyte brushes in electric fields.