

# **Ion-specific swelling and collapse of hydrophobic polymers**

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The structural and thermodynamic properties of synthetic and biological macromolecules significantly depend on the type of salts dissolved in the surrounding solvent environment, i.e., they are ion-specific. Recent investigations have demonstrated that the microscopic reasons behind ion-specificity are the individual interactions between all the chemically diverse macromolecules' groups and the particular ions, which can range from being purely repulsive to being even strongly attractive.

In this talk I would like to discuss our recent insights on this topic for the particular example of the ion-specific collapse and swelling of the popular hydrophobic PNIPAM homopolymer using theoretical and computer simulation methods on different length scales with various resolution of complexity. It appears that ion-specific effects on polymer collapse may be classifiable into three different regimes (collapse by repulsion, swelling by attraction, collapse by strong attraction) with significantly different thermodynamic and structural signatures amongst them.

**Thursday, February 6<sup>th</sup>, 2014**

**16:00 s. t.**

**ICP building, Allmandring 3, Seminar room 1.079**