

Van 't Hoff Laboratory
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Cooperative transitions in simple macromolecules

In the group of Willem Kegel, MSc research projects are available on *cooperative transitions in simple soft-matter systems* such as hydrophobic polyelectrolytes and polymers containing side groups that interact with certain ligands. There are theoretical predictions and experimental indications that these systems can undergo strongly cooperative transitions that are mediated by ligand binding, see J.L. Martin Robinson and W.K. Kegel, PNAS 120, 1-10, (2023),
[https : //www.pnas.org/doi/epdf/10.1073/pnas.2211088120](https://www.pnas.org/doi/epdf/10.1073/pnas.2211088120)

These type of transitions are interesting from a fundamental point of view and also in terms of (switch-like) applications. A project typically includes synthesis and characterization, study of conformations and degree of ligand binding under different physical conditions, and theoretical modeling. Emphasis on one or more of these aspects can be arranged depending on the interest of the student. For more information please contact Willem Kegel, email w.k.kegel@uu.nl.