

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Co-non-solvency: Depletion forces or preferential adsorption?

CARLOS MARQUES, Institut Charles Sadron, CNRS, TIAGO OLIVEIRA, PAULO NETZ, Universidade Federal do Rio Grande do Sul, Brazil, TORSTEN STUEHN, DEBASHISH MUKHERJI, KURT KREMER, Max-Planck-Institute for Polymer Research, Germany — Co-non-solvency is a phenomenon that occurs when a polymer is added to a mixture of two (perfectly) miscible and competing good solvents. As a result, the same polymer collapses into a globule within intermediate mixing ratios. More interestingly, polymer collapses despite the fact that the solvent quality remains good or even gets increasingly better by the addition of the better cosolvent [1]. This puzzling phenomenon, where the solvent quality is completely decoupled from the polymer conformation, is driven by strong local preferential adsorption of the better cosolvent to the polymer [1,2,3]. Because a polymer collapses in good solvent, the depletion forces, that are responsible for standard poor solvent collapse, do not play any role in describing co-non-solvency [4]. [1] D. Mukherji and K. Kremer, *Macromolecules* (2013). [2] D. Mukherji, C. M. Marques, and K. Kremer, *Nature Communications* (2014). [3] D. Mukherji, C. M. Marques, T. Stuehn and K. Kremer, *Journal of Chemical Physics* (2015). [4] T. E. de Oliveira, P. A. Netz, D. Mukherji, and K. Kremer, *Soft Matter* (2015).

Carlos Marques
Institut Charles Sadron, CNRS

Date submitted: 30 Sep 2015

Electronic form version 1.4