

Advances in Small Angle Scattering for Soft Matter

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Small-angle X-ray scattering (SAXS) is a very powerful tool in modern materials science. Its field of application ranges from biological relevant samples, e.g. proteins, to hard and soft condensed matter. This is due the fact that SAXS allows for quantitatively extracting the structural and morphological length scales in nanomaterials [1]. After a general introduction, I will review recent and future developments by presenting explicit examples, including the combination with tomographic methods, micro- and nanofocused x-ray beams as well as grazing incidence. Especially the domain of high-time resolution in kinetic investigations will be addressed, elucidating in-situ microfluidic and deformation processes, thus allowing for establishing the structure-function relation in such processes [2,3].

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[2] M.Trebbin, D. Steinhauser, J. Perlich, A. Buffet, S. V. Roth, W. Zimmermann, J. Thiele, and S. Förster, *PNAS* **110**, 6706 (2013).

[3] K. Brüning, K. Schneider, S. V. Roth, and G. Heinrich, *Macromolecules* **45**, 19 (2012).