

The Soft Matter Group / Universität Paderborn offers a three-year PhD position (13 TV-L, 50%, 3 yrs) on “Self-Assembly of Anionic Dyestuffs”.

Dyestuff molecules, like proteins, exhibit marginal water solubility and a distinctive tendency to self-assemble. Insight into the mechanisms of self-assembly is of utmost importance in various fields including the treatment of amyloidogenic diseases or the performance of cytoskeleton proteins but also in cosmetic or industrial applications. In those applications a slowing down or even an inhibition of aggregation in dyeing liquors may facilitate the incorporation of the dyestuffs into the respective substrates. The present project focusses on the aggregation of a series of anionic dyestuffs in dilute aqueous solution. The work is aiming at an understanding of the underlying aggregation mechanisms and is evaluating the impact of various additives. Identification of additives suitable to control such mechanisms shall benefit from anticipated analogies with biological systems. The work will predominantly rely on time-resolved multi-angle light scattering, which establishes a central expertise in the Soft Matter Group of the University of Paderborn. The technique applying combined static and dynamic light scattering will reveal the evolution of size, mass and shape of growing assemblies. Light scattering shall be supplemented by small angle neutron scattering in the world's leading facilities like the Institut Laue - Langevin in Grenoble. The project is funded by the company KAO, which makes it particularly attractive as it combines fundamental research on self-assembly of organic molecules with



an insight into the development of products in the world of industry. Successful pursuing of the project requires a strong interest in working with complex instruments, in analyzing scattering data and developing kinetic models together with good communication skills in order to enable successful cooperation with beam line scientists at large scale research facilities but also with scientists developing new products in industry.

Multi –angle light scattering versus small angle neutron scattering at D11 (ILL in Grenoble)

To apply, please email a cover letter, CV (in English) and contact information of two referees to Klaus.huber@upb.de (informal enquiries are welcome and can also be directed to this email address). The **application deadline is 9/31/17**.