PhD and postdoc positions available in Grenoble and Tübingen

Dynamics, kinetics and assembly of model intrinsically disordered proteins from a polymer physics perspective

In a project supported jointly by the funding agencies ANR in France and DFG in Germany we are seeking two PhD students to work in Grenoble and Tübingen, respectively, as well as a postdoctoral researcher (3 years) with an interest to be placed consecutively at both locations. This collaborative project between the Institute for Applied Physics in Tübingen, the Interdisciplinary Institute of Physics as well as the Institut Laue - Langevin in Grenoble addresses intrinsically disordered proteins (IDPs) in aqueous solutions by taking a physics-centered approach. It involves both experimental and theoretical aspects. Novel X-ray and neutron scattering methods as well as both atomistic simulations and coarse-grained modeling will be employed to explore model IDPs systematically with the aim to achieve a general, comprehensive picture. This combined approach shall provide answers to the question how disorder of proteins affects their assembly and the associated dynamics from the amino acid level up to the length scale of protein assemblies. These answers shall help to better comprehend the role of IDPs in biological function as well as pathological malfunction. Possible model IDPs consist for instance in *caseins*, and the scattering methods will comprise spectroscopy such as quasi-elastic neutron scattering and X-ray photon correlation spectroscopy as well as small-angle scattering and complementary characterizations such as dynamic light scattering and shear rheology. The modeling part will, *inter alia*, involve simulations using for instance the GROMACS package.
Suitable PhD candidates should have a master's degree or equivalent in physics, physical chemistry, chemistry, or a related field, and have an interest in X-ray and neutron scattering experiments, in sophisticated data analysis employing python, as well as in applying results from modeling and theory. Suitable postdoctoral candidates should have a PhD in the previously mentioned fields and a background in modeling and theory.
Candidates for the postdoctoral positions should have a strong background in theoretical and computational soft matter, statistical physics or physical chemistry, with interest in studying biological systems from a physicist's perspective.

These positions will remain open until suitable candidates will have been identified.

Enquiries regarding these positions may be answered by the project partners Jean-Louis Barrat, Frank Schreiber, Olga Matsarskaia, Tatiana Morozova, Martin Oettel or Tilo Seydel. These enquiries should be addressed via e-mail to idpxn@ill.eu to be visible to all project partners at once.

Applications should as well be sent to idpxn@ill.eu .