PhD / Post-Doc position

Interface-solvent interactions in colloidal dispersions: molecular structure and (femtosecond) dynamics

The project
Nanoscopic colloidal systems are a key component in many areas of science and technology. The physical and chemical properties of such systems are mainly determined by their interfacial properties. Although a clear picture sometimes exists of processes occurring on the macro- and microscopic length and time scale, the underlying molecular picture is not understood. The reason for this gap in knowledge is that the surrounding medium forms an impenetrable barrier to most molecular probes.
Recent developments in the area of nonlinear optics have led to novel nonlinear light scattering methods with which understanding on the molecular scale can be obtained. In this project the question of how interfaces influence the chemical and physical properties of nanoscopic particles in solution will be tackled by applying femtosecond (time-resolved) second-order nonlinear optical methods in combination with other techniques, such as IR spectroscopy, and dynamic light scattering. For more information contact Dr. S. Roke (see below).

About the group
The work will be carried out in the Independent Research Group "Spectroscopy of Bio-interfaces" at the Max-Planck Institute for Metals Research, Stuttgart, Germany. Available equipment includes a high power femtosecond infrared laser system with tunable infrared laser pulses (800 nm – 20 microns), an IR spectrometer, light scattering equipment and preparation laboratories. The institute has excellent technical staff and workshops. Some of our projects can be found on our website: http://www.mf.mpg.de/en/abteilungen/roke/index.html

The candidate
The successful candidate will have a MSc or PhD degree in physics or chemistry, ideally with experience in nonlinear (time-resolved) spectroscopic techniques and experience with working with femtosecond laser systems.

Terms of employment
The position is intended as full-time appointment in the service of Max Planck Society for the duration of 2 years (Post-Doc) or 3-4 years (PhD).

Applications
To apply, please send a CV (including a publication list and the names of 2 potential references) with a cover letter to:

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