PhD Position available

“Optical Control and Analysis of Brownian Machines and Active-Particle Swarms”

A PhD position is available to work under the supervision of Prof. Dr. Frank Cichos at the department Molecular Nanophotonics on the optical control and analysis of Brownian machines and active-particle swarms. This experimental PhD project is part of a recently granted German–Czech (DFG–GACR) research collaboration. The project also includes a collaboration with the Soft Condensed Matter Theory Group of Prof. Dr. Klaus Kroy at the Institute for Theoretical Physics.

Active matter includes flocks of birds, swarms of insects, ensembles of robots, and colonies of bacteria. We are seeking a highly motivated PhD candidate with a Master’s degree in Physics or Physical Chemistry with excellent English proficiency. The successful candidate will perform cutting edge experimental research on the dynamics and non-equilibrium statistical thermodynamics of these systems, with a main focus on many-body effects and confining environments. The candidate should therefore be committed to collaborative and interdisciplinary work, and have excellent oral and written communication skills (records of creative and independent scientific research and active participation in its dissemination in peer-reviewed journals are welcome).

The experimental work will and allow the successful applicant to acquire expert skills and knowledge on innovative micro-optical multi-particle manipulation and detection techniques as well as on machine learning algorithms applied to active particle detection and control. Experience with modern optical microscopy and tweezers techniques and image and time-series analysis, which will be employed to control and study active-particle swarms and microscopic thermodynamic machines, would be useful.

The working language is English. Salaries will be according to DFG standards.

Applications including 1) a letter of interest (max. 1 page), clearly stating the specific motivation of the candidate to join the group, work on this project, career goals, etc., 2) a CV, 3) grade transcripts or equivalent record of excellent academic performance, clearly indicating courses taken and grades in each course (for MS and BS), 4) the names of at least two consenting referees should be sent to cichos@physik.uni-leipzig.de. The application deadline is May 24, 2020.

Please visit our group website for more details about our research: https://www.uni-leipzig.de/~mona