

Stochastic modelling of diffusion in crowded cells

The newly founded Berlin Mathematics Research Center [MATH+](#) invites talented candidates committed to theoretical and numerical research to apply for a position within project EF4-4 as

PhD student (f/m) – 3 years.

The position is located at the Institute of Mathematics, Freie Universität Berlin. The fixed-term contract starts as soon as possible and is limited to 31/12/2021. Corresponding to a full PhD position, employment is part-time (75%) with salary according to the German payscale E13 TV-L FU.

Job description:

Diffusion in cellular environments is a multiscale process that involves a variety of interacting particles and molecular species. The resulting trajectories are typically non-Markovian or non-Gaussian, or both. Main project goals are the stochastic modelling and the statistical analysis of spatiotemporal transport, based on data from fluorescence experiments and molecular simulations.

At the interface of applied mathematics and statistical physics, you will develop theoretically well-founded schemes to infer effective stochastic models from motion data and to quantify memory effects. To accomplish this, you will learn and employ state-of-the-art techniques from multiscale modelling, complex analysis, and data assimilation. You are open towards interdisciplinary cooperations (e.g., life sciences or financial mathematics) to play an active role in international collaborations.

Requirements:

Major (Diploma/MSc) in Mathematics, Physics, or a related field

Desired qualifications:

You have a solid background in applied mathematics or theoretical physics with proven expertise in at least one of the following subjects: stochastic differential equations, multiscale analysis, anomalous transport, molecular dynamics, or statistical inference. The implementation and testing of numerical algorithms are routine tasks for you.

The complete text of this job offer has been published at [FU Stellenanzeiger](#). Please submit your application electronically as a single PDF document (including a detailed CV, list of publications, certificate copies, letter of motivation and research interests) quoting the reference code **MATH+2019_EF4-4** to f.hoefling@fu-berlin.de. Priority will be given to applications until **17 December 2018**.

For more information contact [Prof. Dr. Felix Höfling](#) or [Prof. Dr. Carsten Hartmann](#).