



Trypanosome parasites cause trypanosomiasis, a group of diseases which affect a few million people in the world. These parasites are able to survive in very different environments, including blood, different tissues, and the gut of tsetse fly. This raises the fundamental question of how trypanosomes can efficiently move through crowded viscoelastic environments. As a PhD student you will work at the Institute for Advanced Simulations – Theoretical Physics of Living Matter (IAS-2), where we employ theory, modeling, and simulation to study and understand the structure, self-assembly, and dynamics of complex fluids, active soft matter, and living matter - on the basis of physical principles. You will also benefit from a strong connection to the Jülich Supercomputing Center.

Join our team to the next possible date as

PhD Position – Modeling trypanosome motility in complex environments

Your Job:

The main objective of this PhD project is to achieve a better understanding of the efficient propulsion of trypanosomes through complex crowded environments, mimicking biological tissues. You will employ the trypanosome model established in our group to study its swimming behavior in soft tissue-like surroundings. This project is a part of the DFG-SPP 2332 priority program “Physics of Parasitism”, which includes a variety of theoretical, simulation, and experimental projects from different disciplines.

The key goals of the project are

- to elucidate physical mechanisms that govern trypanosome motility in a dense suspension of soft particles mimicking a collection of biological cells,
- to characterize trypanosome swimming through elastic networks with different pore sizes and elastic properties,
- to identify the limits of trypanosome motility in soft tissue-like environments,
- to publish and present research results in relevant journals and at international conferences.

Conducting research for a changing society: This is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association, we aim to tackle the grand societal challenges of our time and conduct research into the possibilities of a digitized society, a climate-friendly energy system, and a resource-efficient economy. Work together with around 7,500 employees in one of Europe's biggest research centres and help us to shape change!

The job will be advertised until the position has been successfully filled. You should therefore submit your application as soon as possible. We look forward to receiving your application via our

Online-Recruitment-System!

Questions about the vacancy?

Get in touch with us by using **our contact form**.

Please note that for technical reasons we cannot accept applications via email.
www.fz-juelich.de

Your Profile:

- Master's degree or diploma in physics, biophysics, applied mathematics, chemistry, or a relevant engineering discipline
- Strong motivation to study motility of microswimmers and develop computational models
- Good programming skills and experience with numerical modeling and particle-based methods
- Interest in working closely with experimentalists
- Excellent written and spoken English skills
- Experience with parallel programming using MPI and high-performance computing resources is advantageous, but not necessary

Your application should include a CV, motivation letter, copies of university degrees and grades, and contact information of two references.

Our Offer:

We work on the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We offer ideal conditions for you to complete your doctoral degree:

- Experienced and friendly international research team with a strong background in biophysics and active matter
- Cutting-edge computational facilities including the on-site top European supercomputers
- Collaboration with the world's leading experimental groups on parasite motility
- 30 days of annual leave and provision for days off between public holidays and weekends (e.g. between Christmas and New Year)
- Further development of your personal strengths, e.g. through an extensive range of training courses; a structured program of continuing education and networking opportunities specifically for doctoral researchers via JuDocS, the Jülich Center for Doctoral Researchers and Supervisors: <https://www.fz-juelich.de/en/judocs>
- Targeted services for international employees, e.g. through our International Advisory Service

In addition to exciting tasks and a collaborative working atmosphere at Jülich, we have a lot more to offer: <https://go.fzj.de/benefits>

The position is initially for a fixed term of 3 years. Pay in line with 75% of pay group 13 of the Collective Agreement for the Public Service (TVöD-Bund) and additionally 60 % of a monthly salary as special payment („Christmas bonus“). The monthly salaries in euros can be found on page 66 of the PDF download: <https://go.fzj.de/bmi.tvloed> Further information on doctoral degrees at Forschungszentrum Jülich including our other locations is available at: https://www.fz-juelich.de/gp/Careers_Docs

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.

Further information on diversity and equal opportunities: <https://go.fzj.de/equality>