



UNIVERSITY  
OF COLOGNE

Faculty of Mathematics and Natural Sciences

## PhD position in Biological Physics (f/m/x)

### Institute for Biological Physics



We are one of the largest and oldest universities in Europe and one of the most important employers in our region. Our broad range of subjects, the dynamic development of our main research areas and our central location in Cologne make us attractive for students and researchers from around the world. We offer a wide range of career opportunities in science, technology, and administration.

Bacteria are unicellular organisms, yet they can form structured communities called biofilms. Researchers in the Maier group study collective effects in biofilms combining tools from physics and microbiology. The specific research project focuses on the formation of extracellular DNA networks in early biofilms and its role in biofilm mechanics and antibiotic tolerance.

#### YOUR TASKS

- » Establish a microscopic approach for quantitative imaging of alternative DNA structures in bacterial biofilm
- » Develop a laser tweezer based approach to measure interaction forces between different structures of the extracellular matrix of biofilms
- » Investigate potential feedback between antibiotic treatment and antibiotic tolerance
- » Employ and improve data analysis programmes

#### YOUR PROFILE

- » Excellent MSc degree in physics or a related field
- » Strong interest in interdisciplinary research
- » Expertise in at least one of the following fields: biological physics, programming, advanced microscopy
- » Strong communication skills are essential
- » Applicants should be highly motivated and independent

#### WE OFFER

- » An interactive and supportive research environment
- » A diverse working environment with equal opportunities
- » Support in balancing work and family life
- » Flexible working time models
- » Extensive advanced training opportunities
- » Occupational health management offers

The University of Cologne promotes equal opportunities and diversity. Women will be considered preferentially in accordance with the Equal Opportunities Act of North Rhine-Westphalia (Landesgleichstellungsgesetz – LGG NRW). We also expressly welcome applications from all suitable candidates regardless of their gender, nationality, ethnic and social origin, religion, disability, age, sexual orientation and identity.

The position is available from 01.04.2025 on a part-time basis (25,89 hours per week). The position is to be filled for a fixed term until 31.03.2027. If the applicant meets the relevant wage requirements and personal qualifications, the salary will be based on remuneration group 13 TV-L of the pay scale for the German public sector.

Please apply online with proof of the required qualifications without a photo under: <https://jobportal.uni-koeln.de>. The reference number is Wiss2501-23.

The application deadline is 21 February 2025.

For further inquiries, please contact Christina Wetzels ([c.wetzels@uni-koeln.de](mailto:c.wetzels@uni-koeln.de)) and take a look at our [FAQs](#).