

The **Center for Molecular and Cellular Bioengineering (CMCB)** for the **Cluster of Excellence „Physics of Life“ (PoL)** seeks to fill the

Junior Research Group Leader on Data-Driven Modeling of Living Matter

(subject to personal qualification employees are remuneration according to salary group E 15 TV-L with Tenure Track to a W2)

as soon as possible, initially for a limited five-year contract. At the end of the fourth year, a tenure evaluation will be carried out by a cross-faculty and cross-departmental commission. Following a positive evaluation, a permanent Chair (W2) of Data-Driven Modeling of Living Matter will be granted without a renewed call for applications. The evaluation process is based on mutually agreed evaluation criteria established at the start of employment. Essential evaluation criteria are scientific success, the originality and creativity of the research, the quality and quantity of the publications, the success in obtaining third-party funding as well as a positively evaluated teaching performance.

The Cluster of Excellence PoL is embedded in a synergistic, collegial and interdisciplinary network, comprising multiple DRESDEN-concept research institutes such as the CMCB at TU Dresden, the Faculty of Computer Science at TU Dresden, the Max Planck Institute for the Physics of Complex Systems (MPI-PKS) and the Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG), the Leibniz Institute of Polymer Research Dresden (IPF) and the Helmholtz-Zentrum Dresden-Rossendorf (HZDR). Of particular interest to this position are collaborations and joint projects in machine learning and computational modeling with the Center for Information Services and High-Performance Computing (ZIH) of TU Dresden, the Federal Center of Competence “Center for Scalable Data Analytics and Artificial Intelligence” (ScaDS.AI) Dresden/Leipzig, the Center for Explainable and Efficient AI Technologies (CEE-AI), the Center for Advanced Systems Understanding (CASUS) in Görlitz, and the Center for Systems Biology Dresden (CSBD). You will benefit from generous basic funding and support structures, including access to core facilities, high-performance computing infrastructure, and administrative support.

During the temporary employment, you will prove that you are able to fully represent the subject area Data-Driven Modeling of Living Matter in research and teaching. You are expected to establish an internationally visible research program as an independent junior research group leader. Commitment to cross-disciplinary collaborations, by working closely with other research groups of PoL in physics, biology, and computer science is necessary for this position. Teaching in German or English, e.g. in the international master programs, as well as participation in academic self-administration are expected.

We are looking for applications from early career researchers with a university and doctoral degree in computer science, mathematics, engineering, physics, or related disciplines, to establish a strong and internationally leading research program to start their independent career focused on data-driven models and simulations of living matter, such as developing and applying algorithmic and computational approaches to inference and learning of models from data in the physical study of living systems. You are expected to carry out research in the PoL Research Avenue “[Scientific Computing and Systems Microscopy](#)”. Therefore, your research program may include, but is not limited to: learning of continuum or molecular spatio-temporal models from biological microscopy images and videos; learning approximate solutions of mathematical models

from numerical simulation data, in particular models of active mechano-chemical self-organization; learning physically consistent scale couplings in multi-scale models from data; data fusion with high-dimensional omics data; data-driven dimensionality reduction; data-driven surrogate models for accelerating numerical simulation; distributed, parallel, and scalable computing for data-driven modeling. Applications of these developments in the research areas of PoL are expected. These include: biomolecular condensates, molecular compartmentalization of the cell, tissue self-organization and tissue morphogenesis, active molecular systems, emergence of shape and form in biology, as well as applications in medicine and disease or in soft condensed matter physics. The primary criteria for appointment will be a strong record of innovative research and academic performance, an original and promising vision for the future work program at PoL, as well as a high potential for establishing an independent research group with fruitful interdisciplinary collaborations. Teaching experience in the named areas is highly desirable. The prerequisites for appointment to the permanent chair (W2) after successful tenure evaluation are based on § 58 of the Act on the Autonomy of Institutions of Higher Education in the Free State of Saxony (SächsHSFG).

For further information please contact the Speaker of the Cluster of Excellence, Prof. Dr. Stephan Grill, tel. +49 351 210 2300 and the leader of the Research Avenue, Prof. Dr. Ivo Sbalzarini, tel. +49 351 463 38527; e-mail: recruiting.pol@tu-dresden.de.

TU Dresden supports tenure-track staff through the YOU PROF program. Mentoring, coaching sessions, and continuing education programs provide active professional guidance and support throughout the duration of the junior research group funding.

TU Dresden seeks to employ more female researchers in leadership positions. Hence, we particularly encourage qualified women to apply. Applications from candidates with disabilities or those with additional support needs are very welcome. The University is a certified family-friendly university and offers a Dual Career Service. If you have questions about these topics, please feel free to contact the Equal Opportunities Officer of the CMCB (Mr. Martin Kaßner, +49 351 458-82083) or the Representative of Employees with Disabilities (Mr. Roberto Lemmrich, Tel.: +49 351 463-33175).

Please submit your application including a cover letter explaining your motivation to apply for this position, a CV including publication list, a description of past research accomplishments and future research plans (five pages maximum), copies of up to three of your most important publications, an overview of your past funding, supervision, and teaching experience, including teaching evaluations if available (preferably of the past three years), together with a certified copy of the document awarding your highest academic degree, by mail before **October 15, 2021** (stamped arrival date applies) to **TU Dresden, Sprecher des Exzellenzclusters „Physik des Lebens“, Herrn Prof. Dr. Stephan Grill, Tatzberg 47/49, 01307 Dresden** and in electronic form via the SecureMail Portal of TU Dresden, <https://securemail.tu-dresden.de> in a single PDF file to recruiting.pol@tu-dresden.de (subject line "Data-Driven Modeling").

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: <https://tu-dresden.de/karriere/datenschutzhinweis>