PhD – Bioprosthetic Valve Thrombosis (DC17)

Position	PhD student
Specifics	ThromboRisk, Marie Sklodowska-Curie Actions Doctoral Network
Department	ARTORG Center for Biomedical Engineering Research
FTE	100%
Date off	1. February 2026

UNIVERSITÄT BERN

ARTORG CENTER
BIOMEDICAL ENGINEERING RESEARCH

Job Description

At the **ARTORG Center for Biomedical Engineering Research of the University of Bern**, a PhD position is available within the ThromboRisk project, a Marie Sklodowska-Curie Actions (MSCA) Doctoral Network funded by the EU. The position is open for appointment by 1. February 2026, with a duration of 48 months, hosted by the University of Bern, and includes a 4-month secondment at Charité – Universitätsmedizin Berlin in Germany.

We are looking for you!

Do you want to be trained to develop **multi-level thrombosis risk prediction models by integrating insights from cell-, thrombus-, and organ-level perspectives**? While being part of a prestigious MSCA doctoral network working on revolutionizing personalized medicine through cutting-edge *in silico, in vitro,* and *in vivo* technologies to understand, predict, and treat thrombosis? This is your chance!

In this PhD project, the main goal will be to **develop improved aortic valve prostheses that reduce the risk of bioprosthetic valve thrombosis**. This entails answering the following questions: How do we reduce (a) shear-induced platelet activation, (b) endothelial wall damage due to turbulent wall-shear stress, (c) flow stasis in the sinus portions, and (d) clot adhesion at tissue surfaces? To this end, our existing high-fidelity fluid-structure interaction solver (prediction of turbulent flow structures and fluid-structure interaction) needs to be combined with sophisticated blood damage models and thrombosis models (prediction of thrombosis risk).

Research Programme Description

ThromboRisk – European Doctoral Network: From cells to systems - Pioneering multi-level thrombosis risk prediction models consortium. Funded by the European Union under Grant Agreement No. 101227706. It groups 10 hiring universities: Eindhoven University of Technology (NL), University of Maastricht (NL), University of Amsterdam (NL), Catholic University Leuven (BE), Charité – Universitätsmedizin Berlin (DE), University College London (UK), Transsilvania University of Brasov (RO), SANO Centre for Computational Personalized Medicine (PL), University of Leeds (UK), and University of Bern (CH).

ThromboRisk will develop an integrated platform to advance our understanding of thrombosis across biological scales, combining mechanobiology, biochemistry, pathophysiology, and computational modelling. For this inclusion to occur, each DC will develop through their research a unique contribution to the multi-level thrombosis risk prediction framework, addressing specific aspects of thrombus formation, growth, rupture, and clinical impact. This hands-on training is supplemented by several scientific and professional courses, as well as an immersive training program, where DCs can fine-tune their skills for the jobs of tomorrow, while addressing the societal challenges of the ThromboRisk program.

About the University of Bern

The University of Bern is located in the heart of Switzerland. Internationally connected and regionally anchored, it cultivates exchange with society and strengthens partnerships between science, medicine, business, and politics. The University of Bern is committed to a deliberate and ethical responsibility towards people, as well as animate and inanimate nature. As a key educator, promoting enterprise and industry in the region and beyond, it distinguishes itself through problem-oriented research into pressing social issues.
The University of Bern is an equal opportunity employer, promotes a healthy work-life balance and safe working environments, and strives to increase the number of women at all levels in its faculties.

The ARTORG Center for Biomedical Engineering Research is the University of Bern´s transdisciplinary Center of Excellence for medical technology research. Its mission is to tackle unmet clinical needs and envision future challenges in diagnosis, monitoring, and treatment, creating viable healthcare technology solutions with imagination, agility, and purpose. Its projects run from discovery and basic research to clinical translation.

The PhD student will be part of the research group for Cardiovascular Engineering (CVE), which focuses on the study of biomedical flow systems and cardiovascular devices. The research group operates a well-equipped cardiovascular flow lab and a computational lab for the numerical simulation of biomedical flows.

Requirements

- We are looking for a candidate who meets the following requirements:
- You are creative and ambitious, hard-working, and persistent.
- You have an MSc degree in Mechanical Engineering, Biomedical Engineering, Computational Science (or similar) with a strong background in fluid mechanics.
- You have theoretical and applied knowledge or interest in programming, computational science, and computational modelling of complex biomechanical processes.
- You have good communicative skills, and the attitude to partake successfully in the work of an interdisciplinary research team of medical doctors, biologists, engineers, and computational scientists..
- You have a good command of the English language (Spoken and Written, Proficiency C1).

Eligibility criteria

The following eligibility criteria apply for all candidates:

- Supported researchers must be doctoral candidates, i.e., not already in possession of a doctoral degree at the date of the recruitment.
- Recruited researchers can be of any nationality and must comply with the following mobility rule: they must not have resided or carried out their main activity (work, studies, etc.) in the country of the recruiting beneficiary for more than 12 months in the 36 months immediately before their recruitment date. For ‘International European Research Organisations’ (IERO), ‘international organisations’, or entities created under Union law, the researchers must not have spent more than 12 months in the 36 months immediately before their recruitment in the same appointing organisation. Compulsory national service, short stays such as holidays, and time spent by the researcher as part of a procedure for obtaining refugee status under the Geneva Convention are not considered.

Conditions of employment

We offer a meaningful job in a dynamic and ambitious university setting, within an interdisciplinary environment, and as part of an international network. You will work in the University of Bern's thriving medical campus within walking distance of the central train station. The position includes:

- Full-time employment for four years, with an intermediate evaluation (go/no-go) after 18-24 months.
- Strong links to the Bern University Hospital (Inselspital) to provide access to medical expertise
- Competitive work package and fully funded position for the whole duration of the PhD project
- High-quality training programs and other support to grow into a self-aware, autonomous scientific researcher.
- Free German courses available for those wishing to learn
- Salary and Benefits:
    - Gross living allowance: ca. CHF 6'144 per month
    - Mobility allowance: ca. CHF 664 per month
    - Family allowance: ca. CHF 617 per month

  (Values listed are indicative. Final salary will be determined in accordance with the MSCA Call 2024 guidelines and will be finalized during the recruitment process. Gross salary includes mandatory employer social security contributions applied at the University of Bern.)

Applications

Candidates possessing both suitable experience and qualifications are invited to apply. The application should include a:

- a motivation letter, including the topic of your MSc thesis project.
- a curriculum vitae (including contact details of at least two references).
- a list of BSc and MSc courses and grades.

Please submit these documents by email to info.artorg@unibe.ch

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Review of applications will begin as soon as they are received and will continue until the position is filled. Promising candidates will be contacted by email.

For more information on this position, please contact Prof. Dr. Dominik Obrist, dominik.obrist@unibe.ch.