

PHD POSITION OFFER – 36 MONTHS (Q4 2026 – Q3 2029)

BIOMECHANICAL AND CLINICAL INVESTIGATION OF TEXTILE BASED SUSPENSION REPAIR OF FEMALE PELVIC ORGAN PROLAPSE THROUGH INNOVATIVE CLINICAL TRIAL AND NUMERICAL MODELLING

RESEARCHER PROFILE

- PhD / R1: First stage Researcher
- Postdoc / R2: PhD holders
- Researcher, Assistant Professor/ Senior Lecturer / R3: Established Researcher
- Professor, Tenure track / R4: Leading Researcher

RESEARCH FIELD(S)¹: Engineering, Computer Science

MAIN SUB RESEARCH FIELD OR DISCIPLINES¹: Medical Sciences

JOB /OFFER DESCRIPTION

Host institution

The Laboratory of Applied Biomechanics (LBA) is a joint research unit of the University Gustave Eiffel and Aix-Marseille University, located within the Faculty of Medicine on the North Hospital-University Campus in Marseille. Its research program is based on the biomechanical modelling and simulation of the human body (Virtual Human) for health, sports, and safety applications. The laboratory's objectives include understanding trauma mechanisms to improve prevention and treatment of resulting injuries, and enhancing medical devices and associated surgical techniques.

Clinical context

Female pelvic organ prolapse affects nearly one in three women to varying degrees. It represents a major societal challenge. Complication rates after surgery remain very high regardless of the techniques and materials used. A better understanding of the influence of mechanical factors is required to improve clinical outcomes.

Scientific context

This PhD research is part of the 3 year Excellence Chair program “Innovative Materials for Human Body Applications” funded by the A*Midex foundation and initiated in 2025 (<https://www.univ-amu.fr/fr/public/actualites/decouvrez-les-nouveaux-laureats-des-appels-projets-amidex-decembre-2024>). 5 full time equivalent researchers are planned to be recruited. More specifically, this PhD thesis concerns the work package dealing with the improvement of female pelvic organ prolapse (POP) treatment with innovative partially resorbable medical textiles.

Objective

This doctoral project aims, firstly, to understand the mechanobiology of pelvic organs in targeted patients after prolapse repair with a textile suspension implant, and secondly, to correlate these results with clinical observations. A comprehensive and innovative methodology will be implemented for patient follow-up. It will integrate theoretical, numerical, and experimental approaches to address clinical, biomechanical, biological and wave physics issues.

This work of understanding and modelling will constitute a first step in the development of predictive models for the treatment of pelvic disorders. It will also pave the way for improvements in the principles of technique, textile implants, and rehabilitation protocols.

Collaborations

A close collaboration is planned with the New Technologies – Research Centre (NTC), University of West Bohemia in Pilsen (UWB), Czech Republic, for the computational modelling work. NTC will host the PhD student for a period of 9 to 12 months. In addition, a partnership will be considered with



LabTau (INSERM U1032, Lyon) for conducting passive elastography investigations. Finally, the clinical trial will be run with the Marseille Public University Hospital System and Institute for Maternal and Child Care, Charles University, Prague, Czech Republic.

Main phases and deliverables

The PhD student will benefit from LBA's and NTC's expertise in running clinical trials and modelling human territories. The work will include the following main tasks (provisional time investment)

- Updating the literature review (2 months)
- Clinical trial (12 months)
- Modelling and simulation (18 months)
- Communication: 2 articles published and 1 submitted, 2 podium presentations (4 months)

TYPE OF CONTRACT: PERMANENT TEMPORARY TO BE DEFINED

JOB STATUS: FULL TIME PART TIME NEGOTIABLE

HOURS PER WEEK: 35h

APPLICATION DEADLINE: 24/04/2026

ENVISAGED STARTING DATE: October 2026

ENVISAGED DURATION: 36 months

IS THE JOB FUNDED THROUGH AN EU RESEARCH FRAMEWORK PROGRAMME? YES NO

HOW TO APPLY

Frédéric Turquier (Full Professor, Aix-Marseille University)

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Website: <https://lba.univ-gustave-eiffel.fr/recrutement>

Vít Nováček (Senior Researcher, University of West Bohemia in Pilsen)

E-mail: vnovacek@ntc.zcu.cz

Website : https://www.ntc.zcu.cz/en/Research/Research_topics/Human_Body_Models.html

L. Beyer-Berjot (PUPH - LBA/AMU – APHM)

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WORK LOCATIONS:

The primary location (24 to 27 months) will be the Laboratory of Applied Biomechanics / Aix-Marseille University – Gustave Eiffel University; Faculté des Sciences Médicales et Paramédicales - Secteur Nord, 51 Bd Pierre Dramard F-13015 Marseille, France.

The secondary location (9 to 12 months) will be the New Technologies – Research Centre, Teslova 5b, 301 00 Pilsen, Czech Republic.

WHAT WE OFFER: Gross salary of 2 300 € per month, opportunity to initiate a research career in a laboratory that has gained international recognition and influence in human numerical simulations for health and safety application over the past decades (<https://lba.univ-gustave-eiffel.fr/>).

Additional information: The Euraxess Center of Aix-Marseille Université informs foreign visiting professors, researchers, postdoc and PhD candidates about the administrative steps to be undertaken prior to arrival at AMU and the various practical formalities to be completed once in France: visas and entry requirements, insurance, help finding accommodation, support in opening a bank account, etc. More information on [AMU EURAXESS Portal](#)



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QUALIFICATIONS, REQUIRED RESEARCH FIELDS, REQUIRED EDUCATION LEVEL, PROFESSIONAL SKILLS, OTHER RESEARCH REQUIREMENTS

- Master's degree Research (Master 2) in Mechanics, Biomechanics or Mechanical Engineering
- a strong interest in research at the intersection of biomechanics and clinical practice,
- a solid theoretical foundation in continuum mechanics,
- exposure to imaging and data processing techniques (an asset),
- initial experience in Finite Element model development and simulation,
- C1 level in English or (C1 in French and B2 in English) required

Soft skills: Autonomy, Teamwork, Analytical and critical thinking, Strong written and oral ability,

REQUESTED DOCUMENTS OF APPLICATION, ELIGIBILITY CRITERIA, SELECTION PROCESS

- CV and a minimum of 2 references
- Selection will be based on knowledge in continuum mechanics, experimental and numerical experience and ability to engage in the Chair of Excellence program,
- The recruitment process is managed by the ED659 of Aix-Marseille University (<https://ecole-doctorale-659.univ-amu.fr/fr/clone-concours-ed-financements>). Application deadline on April 24th 2026, in-person or videoconference interview process completed by May 11th 2026, final selection by early June 2026 after the candidate defense (<https://ecole-doctorale-659.univ-amu.fr/fr/futur-doctorant/financements/concours-de-lecole-doctorale>)

