

Computational Cardiac Modeling Electro-mechanics + Fluid Dynamics

Join a multi-physics PhD project on electrophysiology, nonlinear mechanics, and fluid-structure interaction.

Modeling

Numerics

Physiology

FSI

We expect to open a PhD position in our group, subject to final grant approval. The project continues research initiated during a sabbatical stay at UCLouvain and aims to simulate coupled heart dynamics in the left atrium.

Target audience: highly motivated MSc students with a strong quantitative profile.

YOU WILL WORK ON

- cardiac electrical wave propagation
- nonlinear tissue mechanics
- fluid dynamics inside a heart chamber
- numerical methods for coupled FSI

IDEAL PROFILE

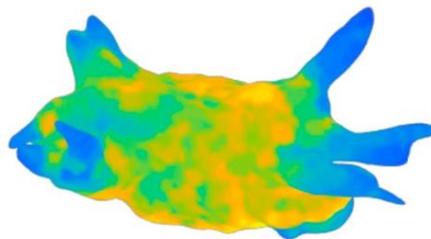
- MSc in applied math, physics, or engineering
- interest in scientific computing and modeling
- coding skills (Python, MATLAB, or C/C++)
- curiosity for physiology and multi-physics

SCIENTIFIC AIM

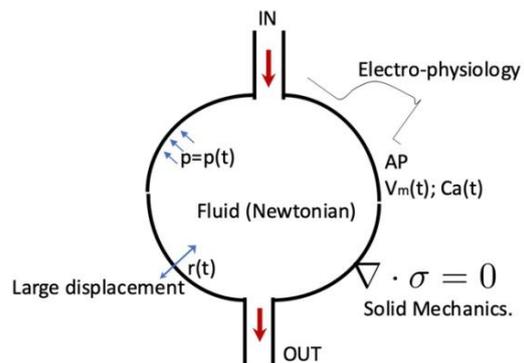
Aim: “simple-full model” of the left atrium

Simplify the geometry and include the full dynamics :

Fluid inlet : 4 Pulmonary veins (O₂ blood)



Fluid outlet : Mitral valve (towards LV)



Interested? Get in touch now

Prof. Jean Bragard | UNAV, Pamplona
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More info
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