

Towards a Reliable Model of the Left Ventricle – Experiments and Simulation

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The process of building a laboratory investigating the mechanical behavior of the heart will be presented.

In this lab, state of the art, computational methods are employed to analyze, monitor and ultimately heal cardiac diseases. In the future, this reliable patient-specific model will serve as a decision-supporting tool for physicians, predicting long and short term effects taking place in the human heart. The Continuity academic software package is employed as the main FE software package. A structural constitutive model is in process of being incorporated in the package.

Moreover, in the lab, the myocardium constitutive relation is being studied through bi-axial tissue experiments. In the presentation, pigs hurt myocardium test results will be presented.

Finally, the common approach of using material constitutive relation parameters from past experiment in modeling will be discussed and it will be proposed to modify them to the specific problem.