

Blood velocity computation inside of a human heart left atrium

Nikolajus Kozulinas

Vilniaus Universitetas

nikolajus.kozulinas@mif.vu.lt

Sergejus Borodinas

VGTU

sergejus.borodinas@vilniustech.lt

Kristina Kaulakyte

Vilnius University

kristina.kaulakyte@mif.vu.lt

Grigory Panasenko

University Jean Monnet (St Etienne) and Vilnius University

grigory.panasenko@univ-st-etienne.fr

Konstantinas Pileckas

Vilnius University

konstantinas.pileckas@mif.vu.lt

In this presentation a model of the blood flow for a geometry of LAA (left atrial appendage) will be described. The goal is to improve early prediction of thrombus formation during atrial fibrillation which can be considered as one of the triggers for stroke. There are four of the most well-known shapes of LAA: chicken wing, windsock, cauliflower and cactus. In the first two cases there is no high blood stagnation inside of LAA, therefore possibility of thrombi formation is not high enough. But the latter two oppositely due to a very low blood velocity, during atrial fibrillation convey a higher possibility for a blood clot formation. By implementing of computer tomography, we obtain the views of a human heart and construct computational mesh. Afterwards, in accordance with numerical methods for the Navier-Stokes equations we calculate blood velocity magnitude distribution inside of LAA.

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