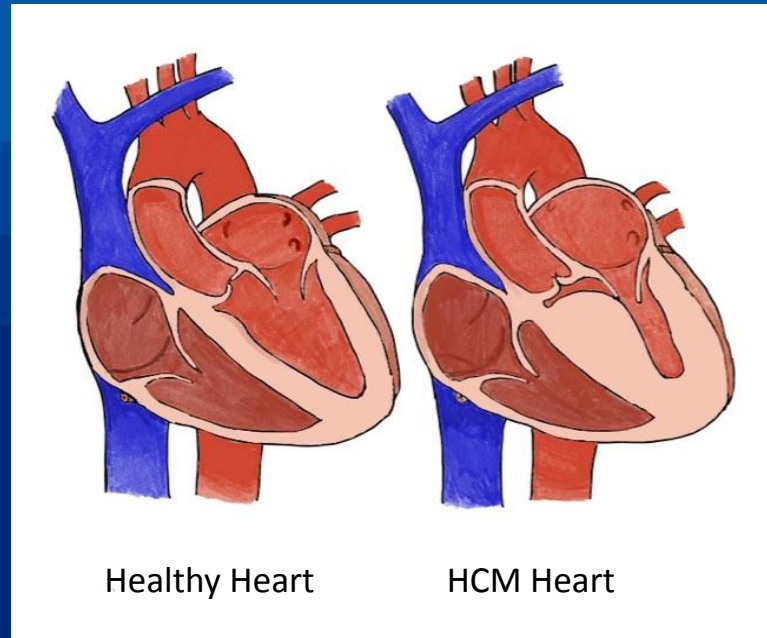


# Fluid Flow in the Left Ventricle with Hypertrophic Obstructive Cardiomyopathy


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# Background

- **HCM (Hypertrophic Cardiomyopathy):** congenital cardiac disorder causing thickening of the myocardium
- **Hypertrophic Obstructive Cardiomyopathy (HOCM)** induces a flow obstruction in the left ventricular outflow tract



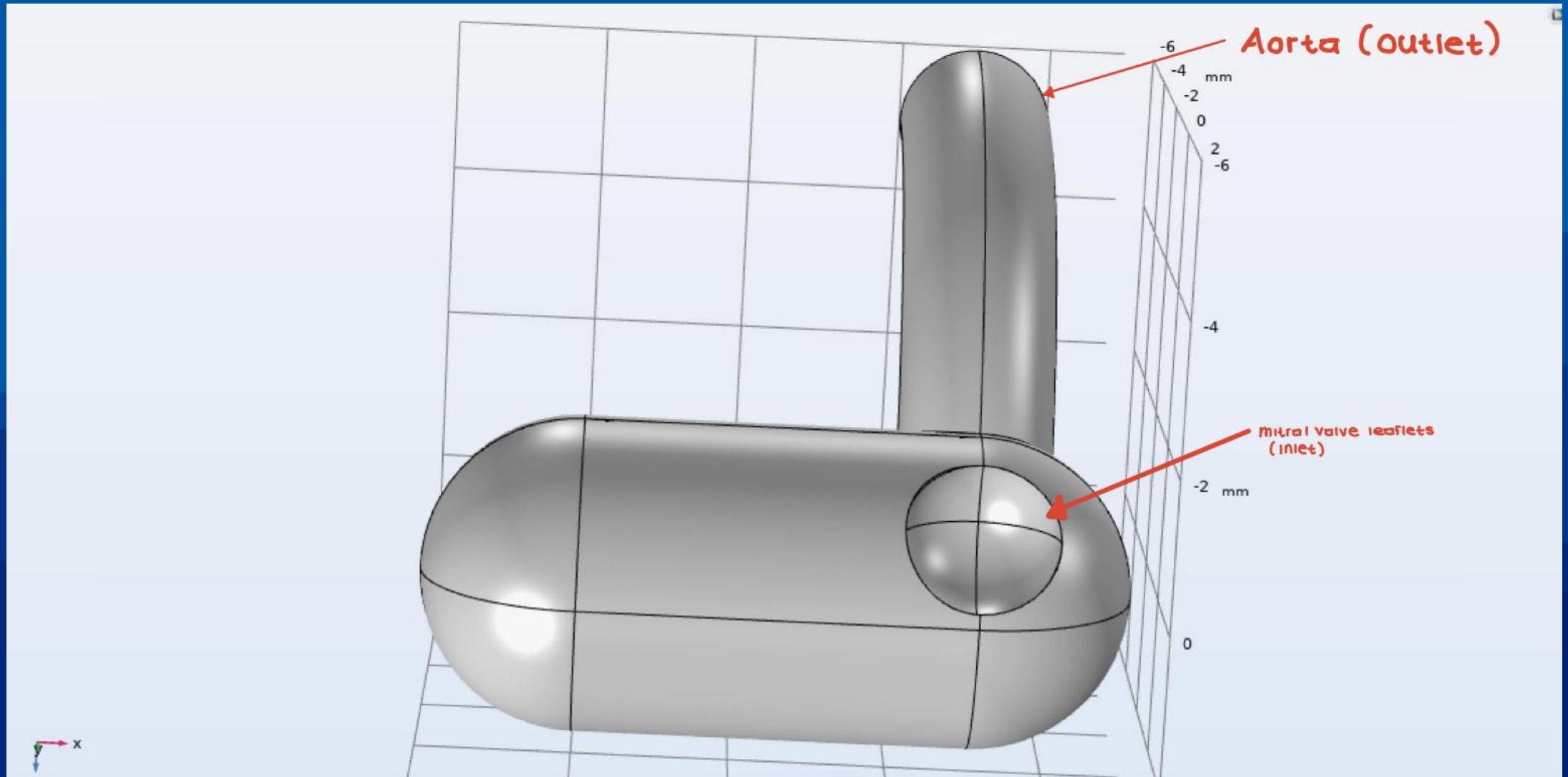
# Proposal



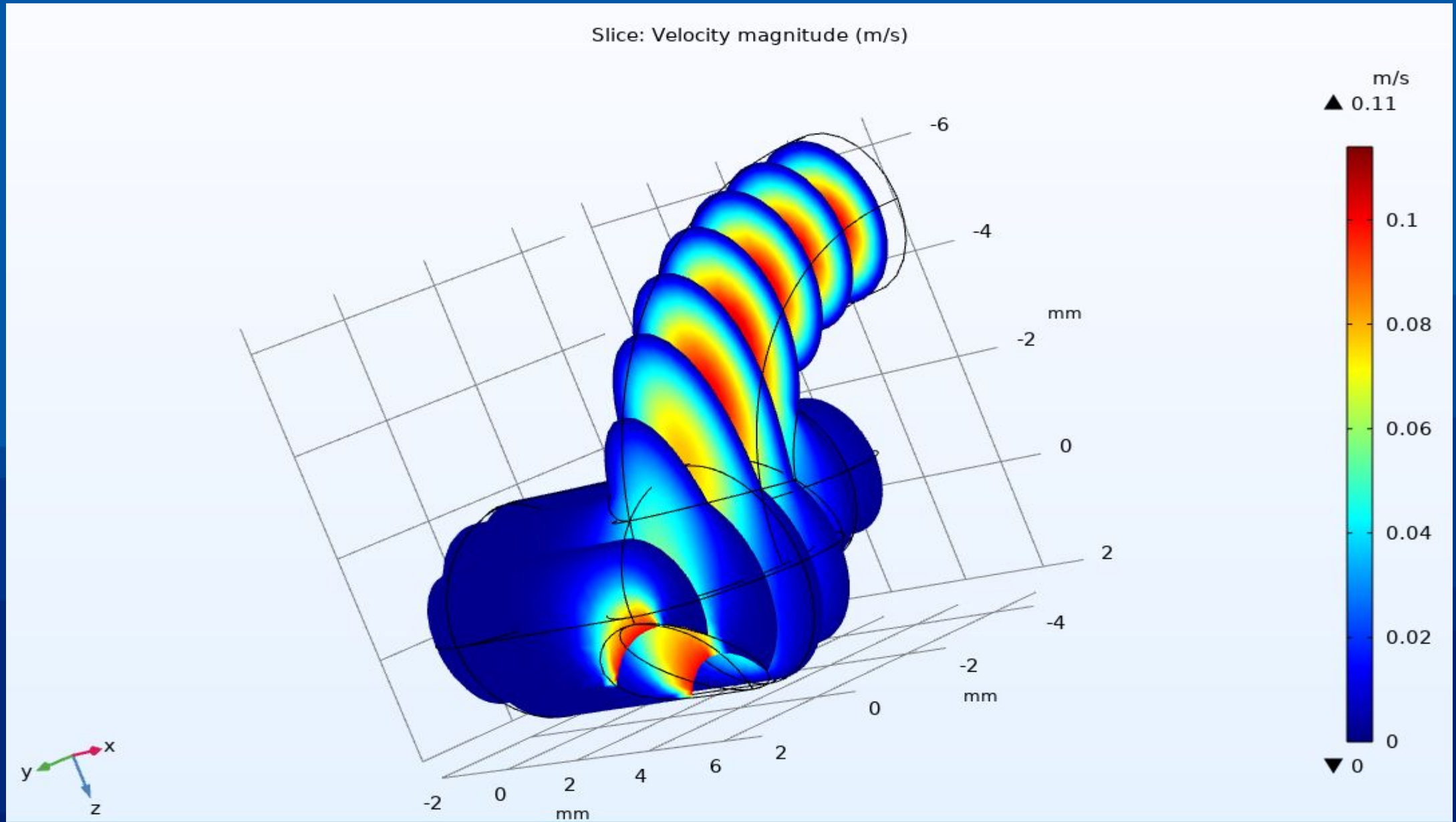
**Modeling fluid flow (using COMSOL) within the left ventricle with hypercontractile muscle, myocardial and septal thickening that causes obstruction of the outflow tract. We also analyzed the difference between velocity a healthy and a HOCM left ventricle.**

- **Blood flow is reduced during the systolic phase during this obstruction.**
- **Healthy model should have a higher velocity**

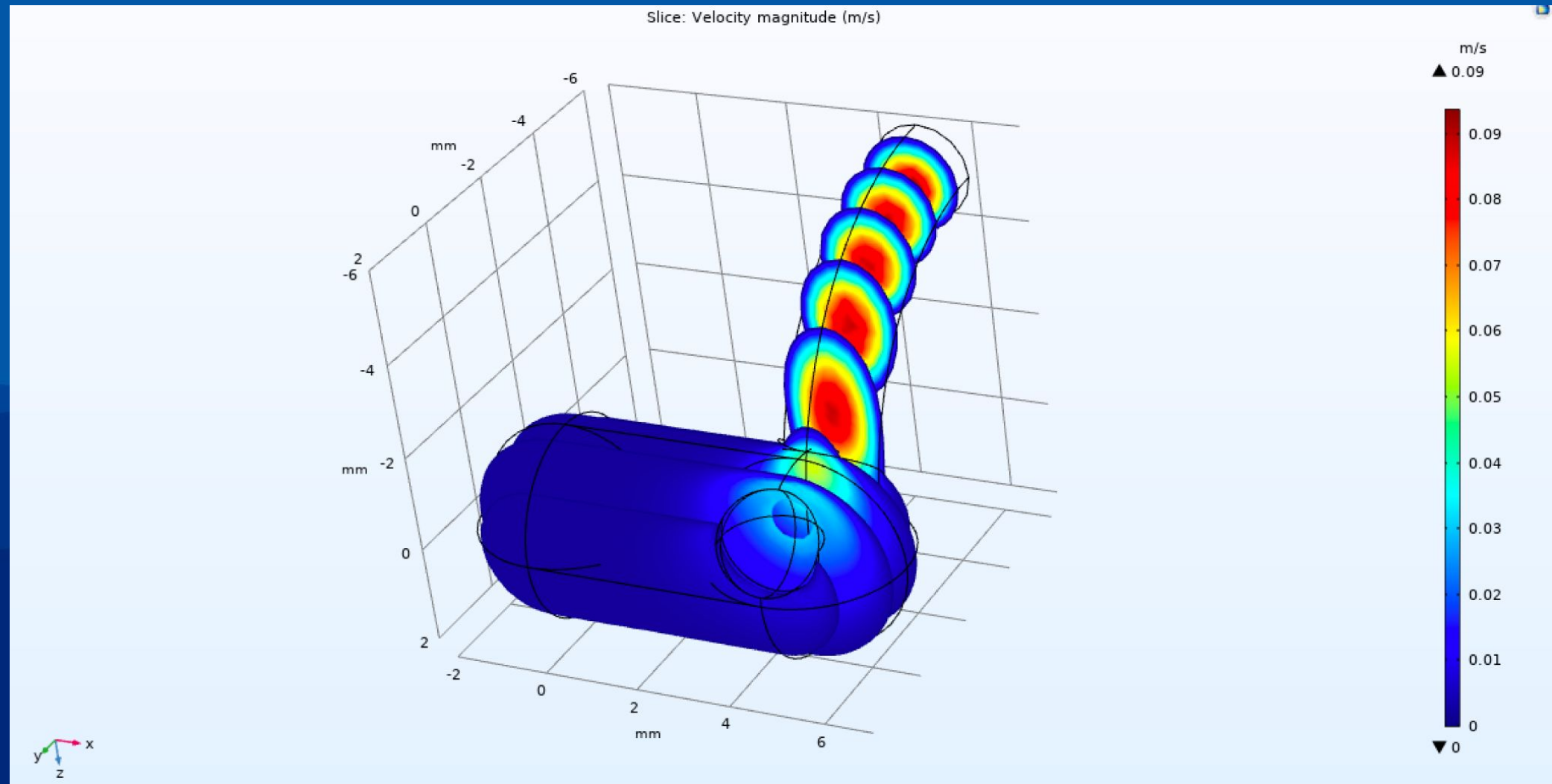
# 3D Model Geometry



# Regular Left Ventricle



# Deformed Left Ventricle



# References



**Ivan Fumagalli Piermario Vitullo** *Image-Based Computational Hemodynamics Analysis of Systolic Obstruction in Hypertrophic Cardiomyopathy*

**Clourchaine K Rugonyi S** Quantifying blood flow dynamics during cardiac development: demystifying computational method *Philos. Trans. R. Soc. Lond. B Biol. Sci.*