UNIFIED CONTINUUM FLUID-STRUCTURE INTERACTION (FSI) FOR VOICE MODELLING

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We present a monolithic approach for FSI simulation of human vocal folds. Uncertainty exists in the modelling of the biological tissues, not only due to patient anatomy but also due to difficulties in measuring constitutive parameters, since they differ in living and dead tissues.

Therefore we validate the model by testing against flow field data from experiments using replicas with known properties. The flow field is obtained through particle-image velocimetry technique provided by collaborators from FAU- Erlangen.

We present the monolithic FSI model and the numerical method, based on the Unified Continuum methodology introduced in [1] and we make detailed comparisons between experiments and computational simulations.

REFERENCES