



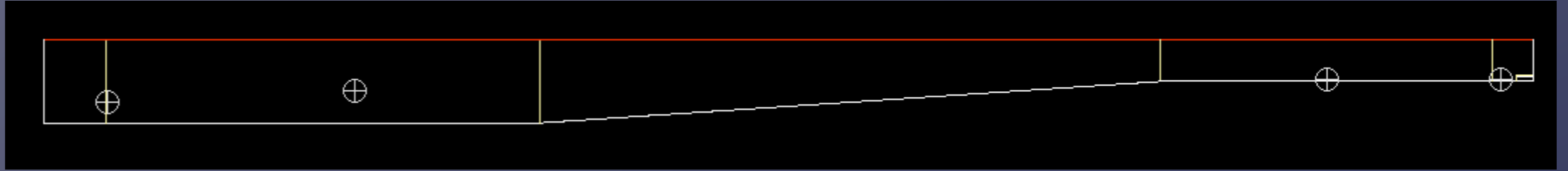
CFD simulations overview

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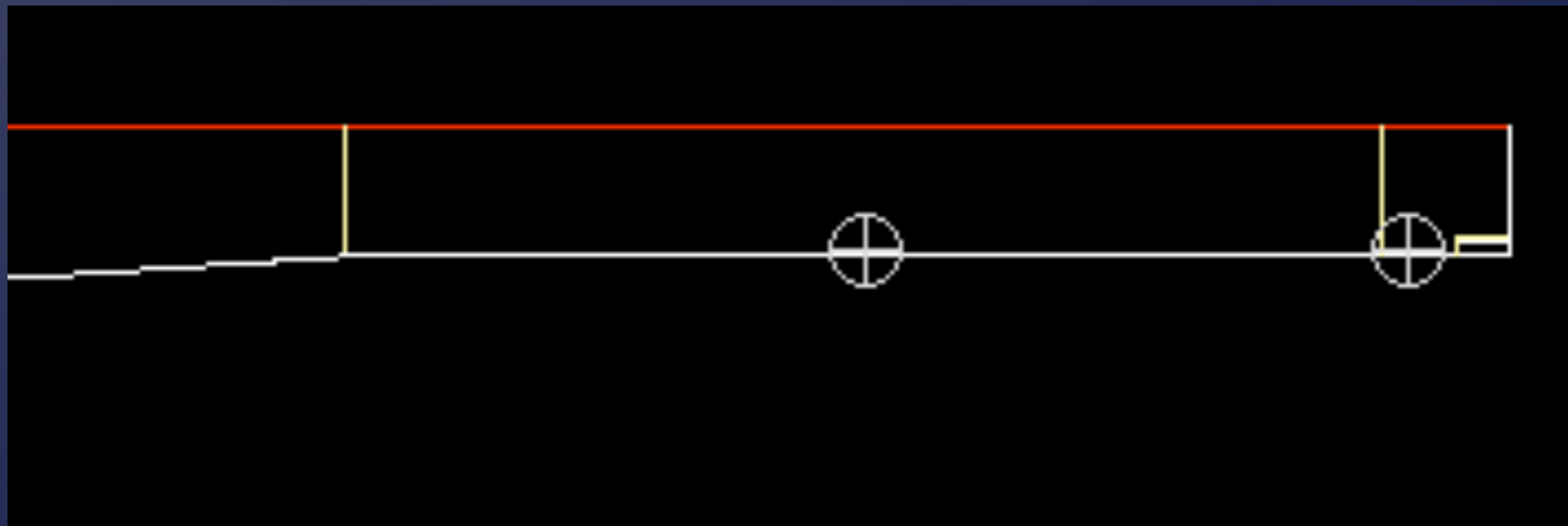
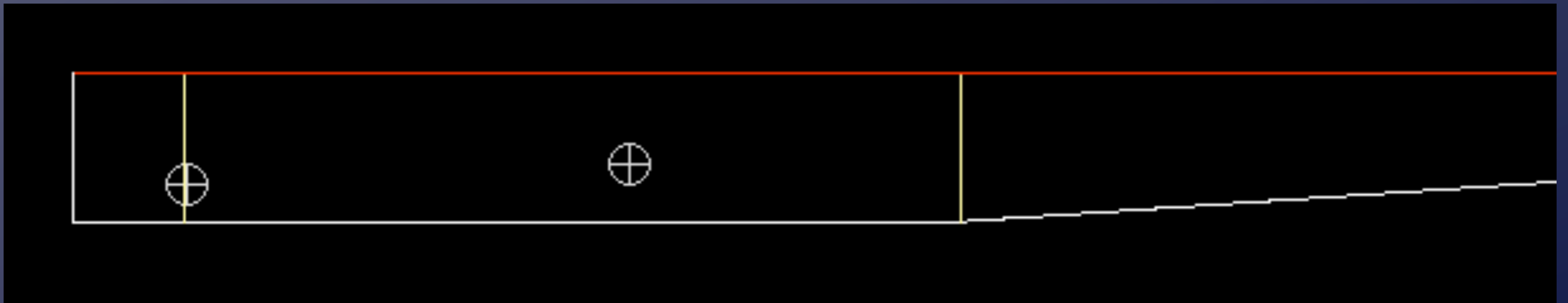
Overview

- *The OSU tank was modeled with wave generating paddle.*
- *Right now, finally, I managed to create stable model. Currently, we are running cases for wall-plate configuration with 20 [cm] wave height.*
- *Some of the test runs showed results overlap, which is good.*
- *Results will be compared to measurements obtained at OSU Tsunami Wave Basin (pressures, wave height, velocities, structural forces).*



Four points were selected:

- | | | | | | |
|-----------|----------------------------|----------------------------|-----------|----------------------------|----------------------------|
| 1: | $x=1.5,$ | $y=0.5$ | 2: | $x=7.5$ | $y=0.75$ |
| 3: | $x=31.0$ | $y=1.02$ | 4: | $x=35.2$ | $y=1.02$ |

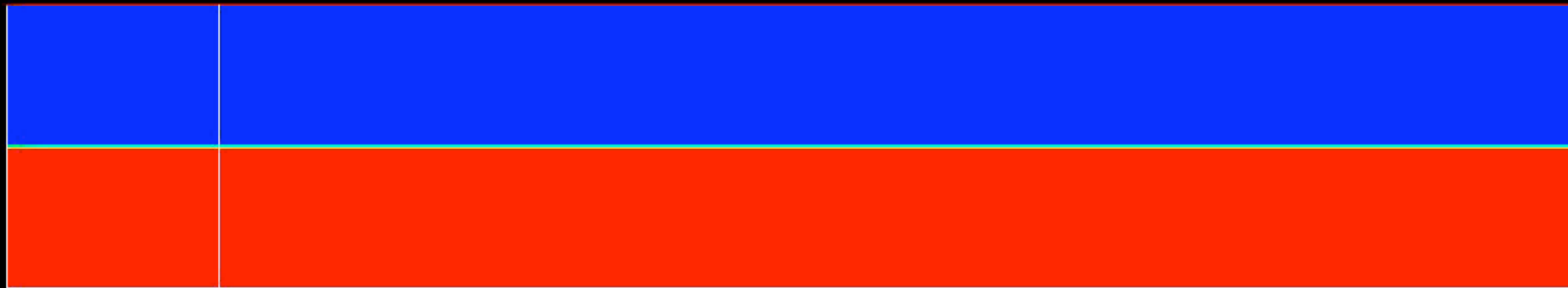
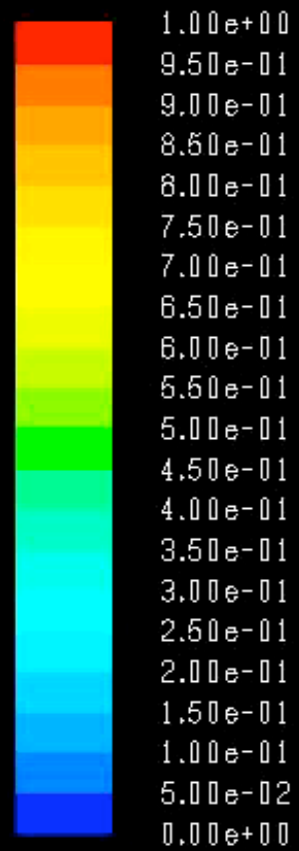




To download movies go to:

<http://www2.hawaii.edu/~krystian/sample.zip>

Gamma field | From paddle (0 m) to 15 m



Contours of Volume fraction (water) (Time=4.0000e-02)

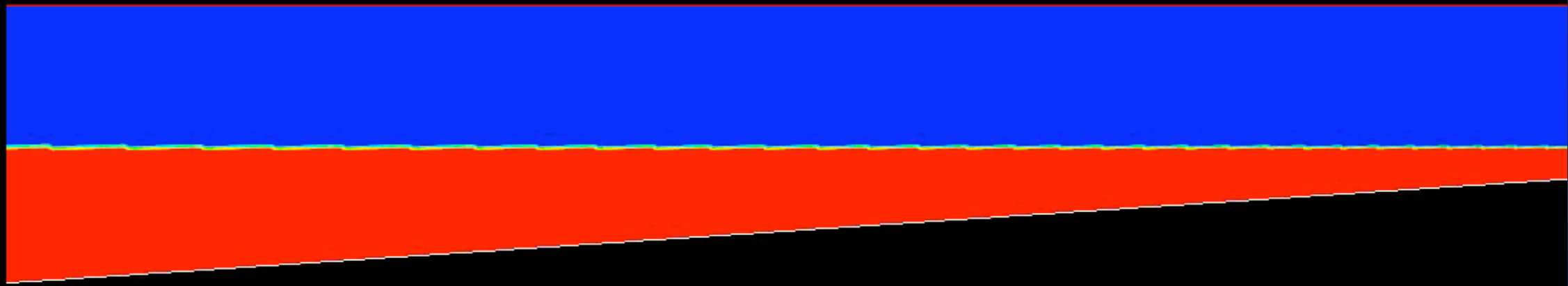
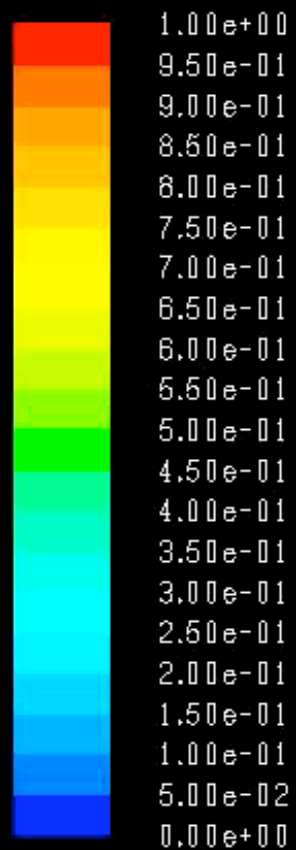
Oct 14, 2008
FLUENT 6.3 (2d, pbns, dynamesh, vof, ske, unsteady)



To download movies go to:

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Gamma field | From 15 m to 25 m



Contours of Volume fraction (water) (Time=4.0000e-02)

Oct 14, 2006
FLUENT 6.3 (2d, pbns, dynamesh, vof, ske, unsteady)

To download movies go to:

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Gamma field | From 15 m to 25 m





At each of the 4 points the following variables were measured:

At point 1:

- hydrostatic pressure*
- hydrodynamic pressure*
- total pressure*

At all other points:

- total pressure*

Structure:

- structural forces*

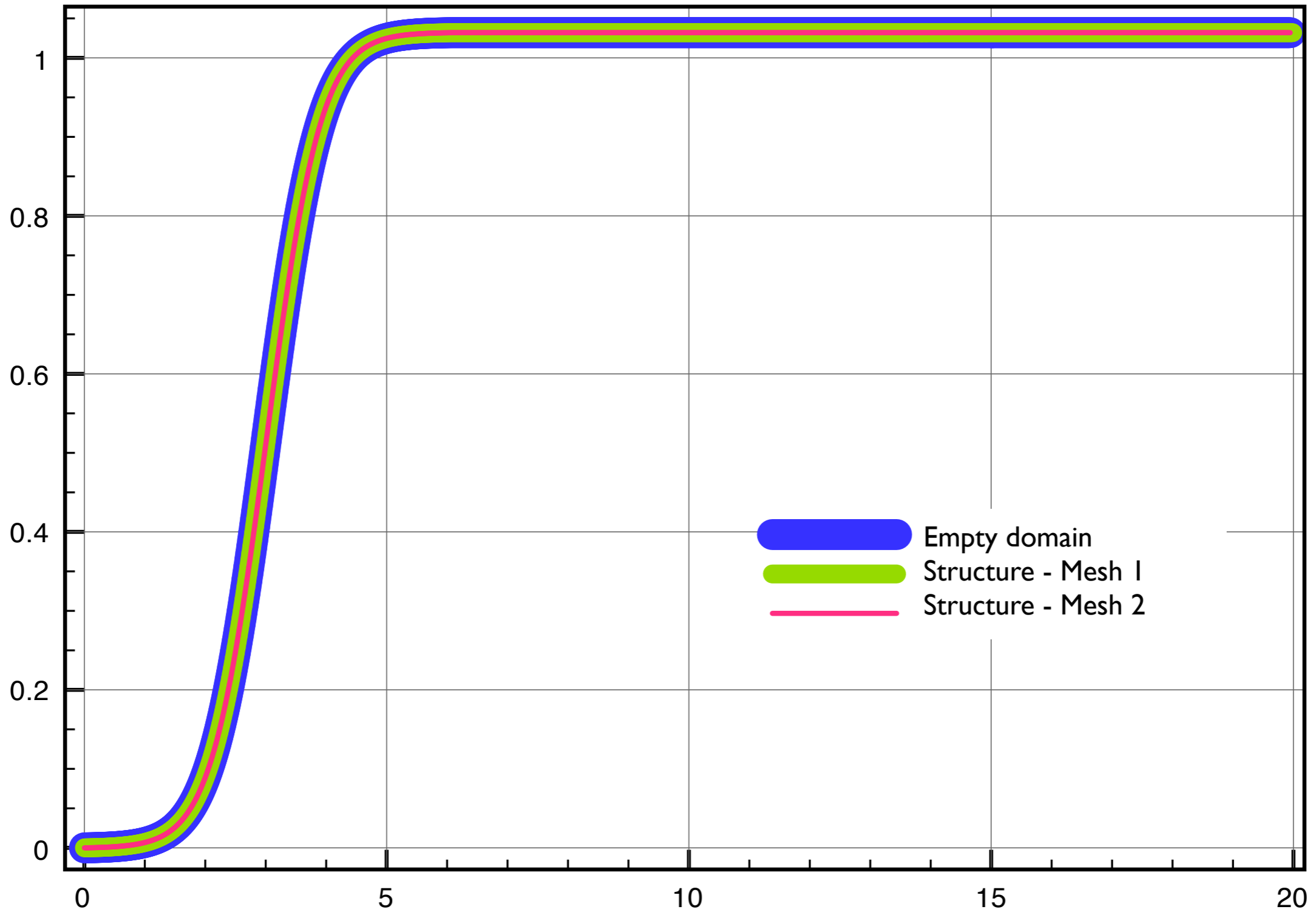
and:

- paddle movement*



Paddle movement

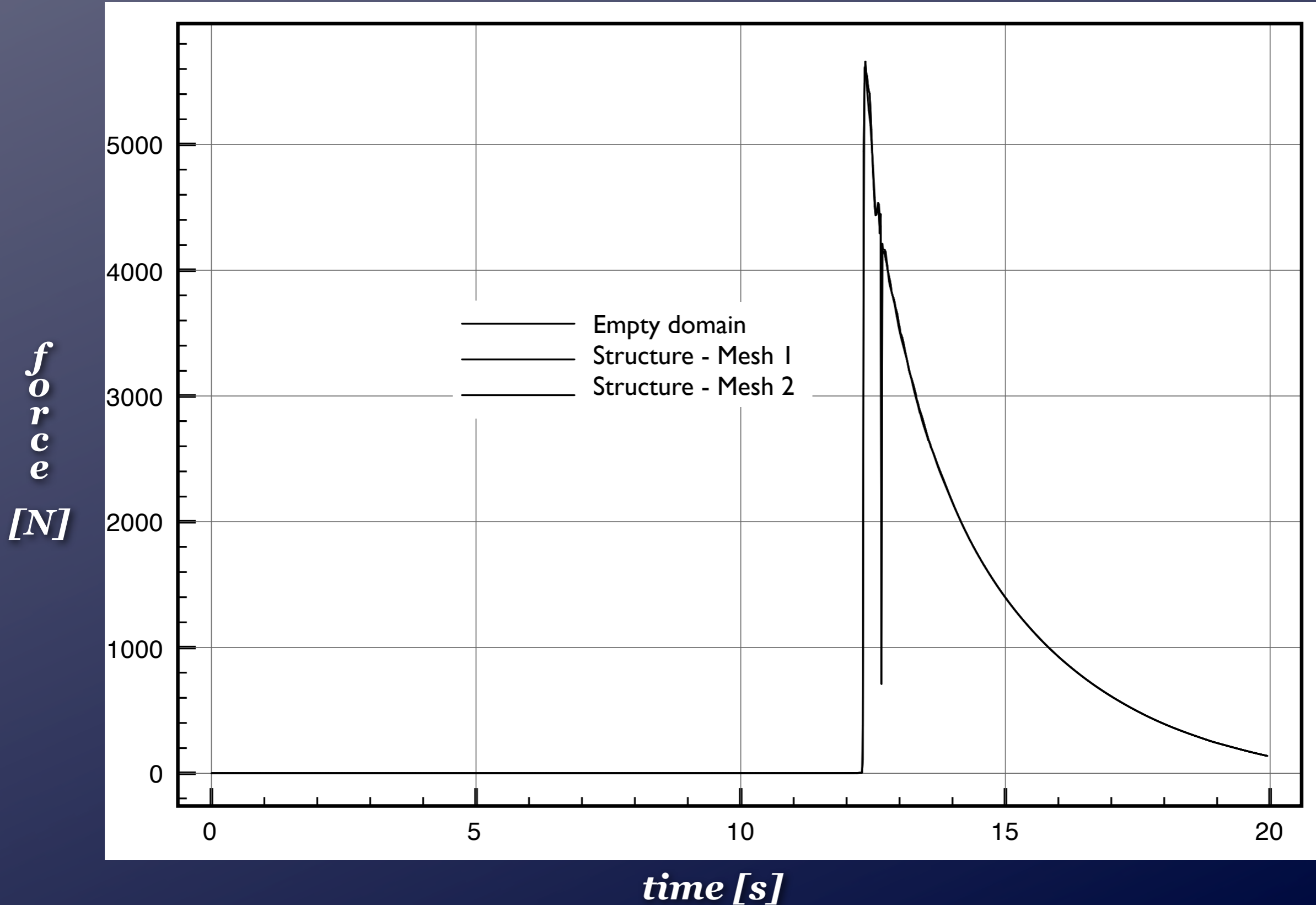
paddle displacement [N]



time [s]



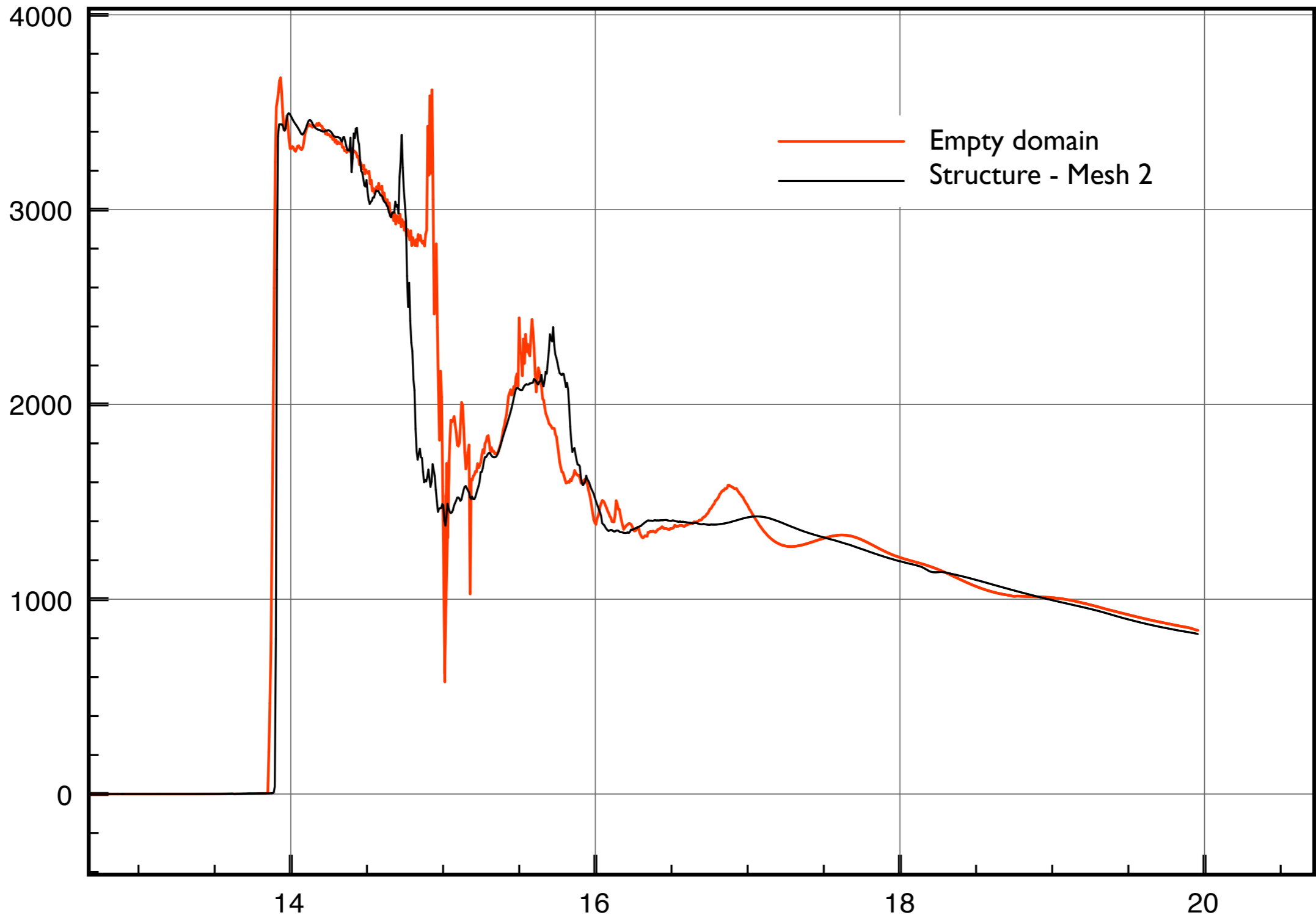
Point 3 - Total pressure ($x=31.0, y=1.02$)





Point 4 - Total pressure ($x=35.2, y=1.02$)

force
[N]



time [s]



Thank you