# État Rankine - Modèle

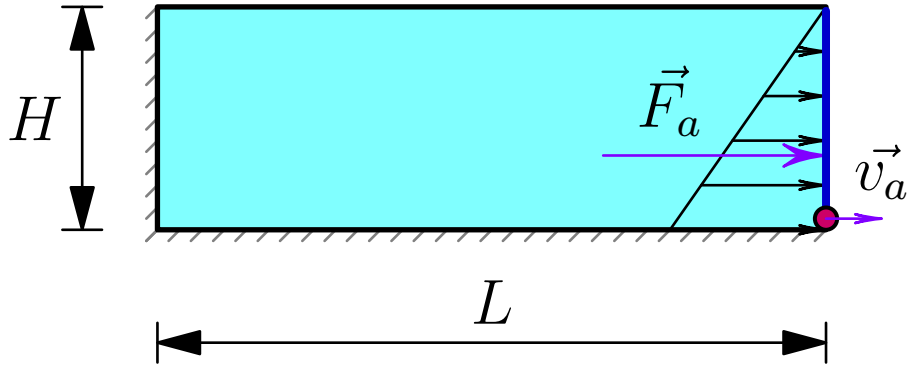


Figure 1 – Pression active :le mur s'éloigne du sol

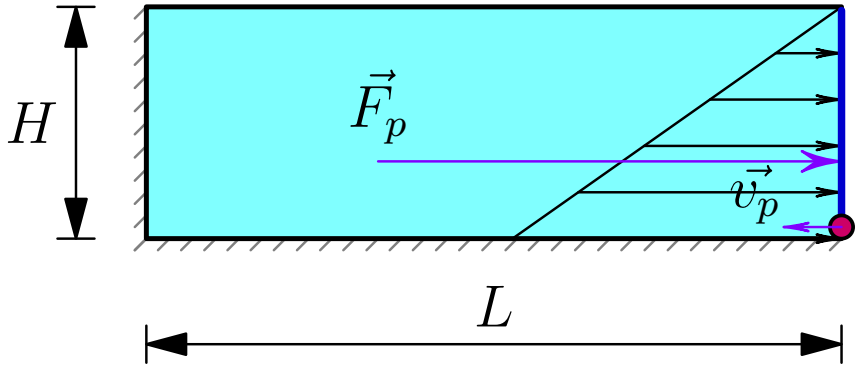


Figure 2 – Pression passive :le mur se rapproche du sol

Observer la pression sur le mur en bleu

# Stabilisation - Modèle avec des points fixées

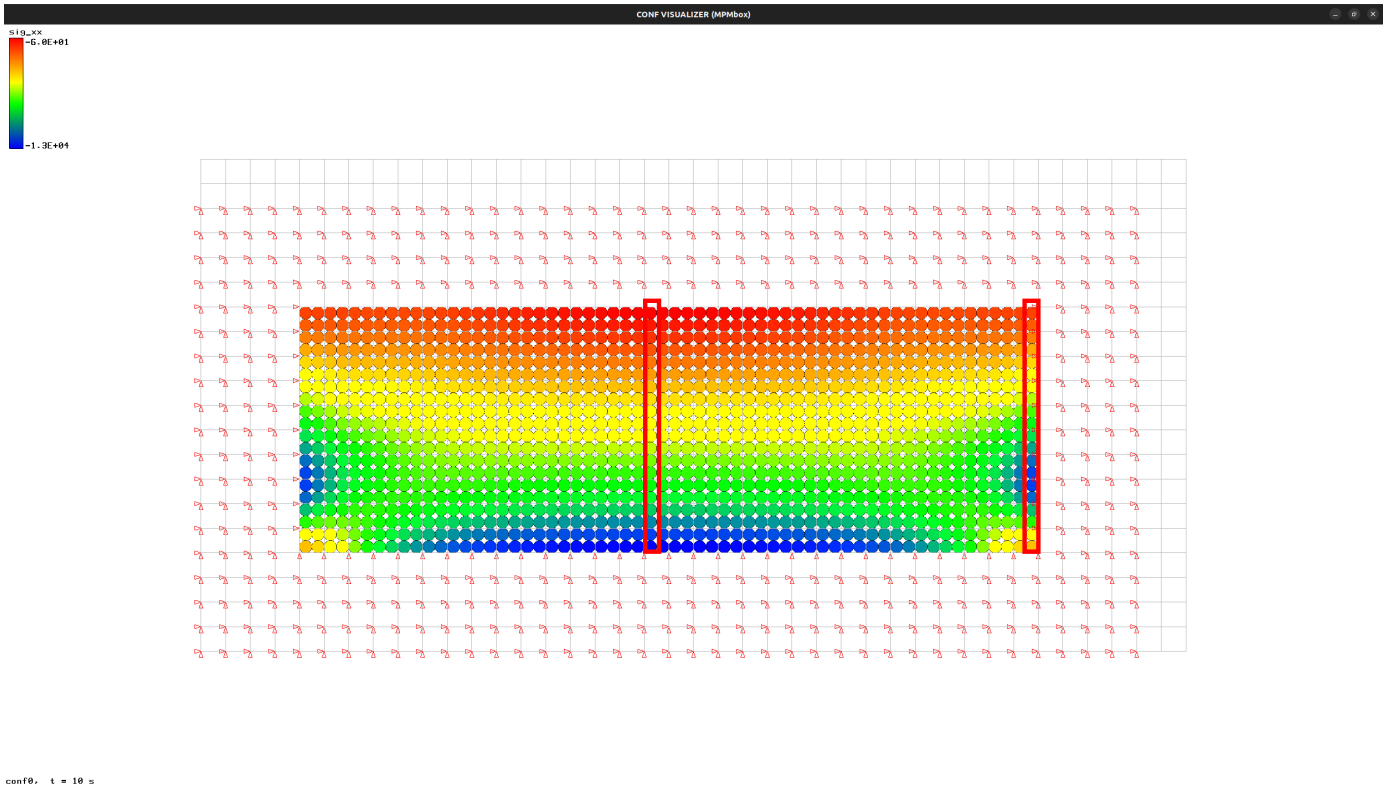


Figure 3 – Le maillage et les lignes fixées

L = 3m, H = 1m, $\rho = 2700\ \mathrm{kg/m^3}$, $N_{\text{PM}} = 1200$, $\mu_{\text{mur-PM}} = 0$
Fixer les déplacements des lignes latérales selon l'axe x et de celles en dessous selon l'axe y

# Stabilisation - Taux de contrainte de bande au milieu

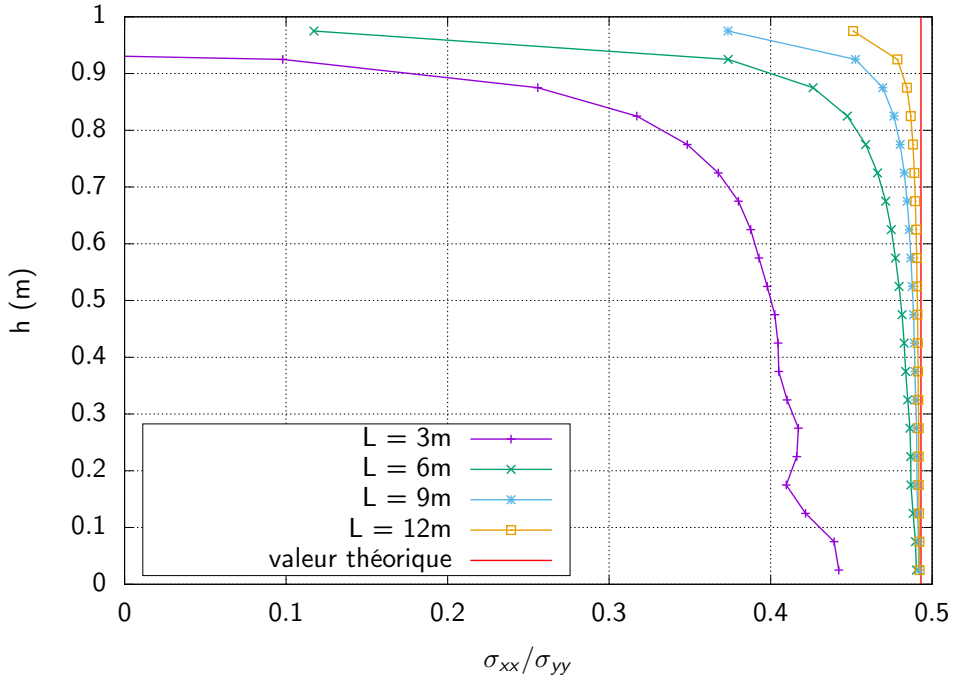


Figure 4 – Longueur du modèle

Modèle élastique : $\nu = 0.33, E = 1e6kPa, H = 1m$

$$K_0 = \frac{\sigma_{xx}}{\sigma_{yy}} = \frac{\nu}{1-\nu} == \frac{0.33}{1-0.33} = 0.493$$

# Stabilisation - Taux de contrainte de bande au milieu

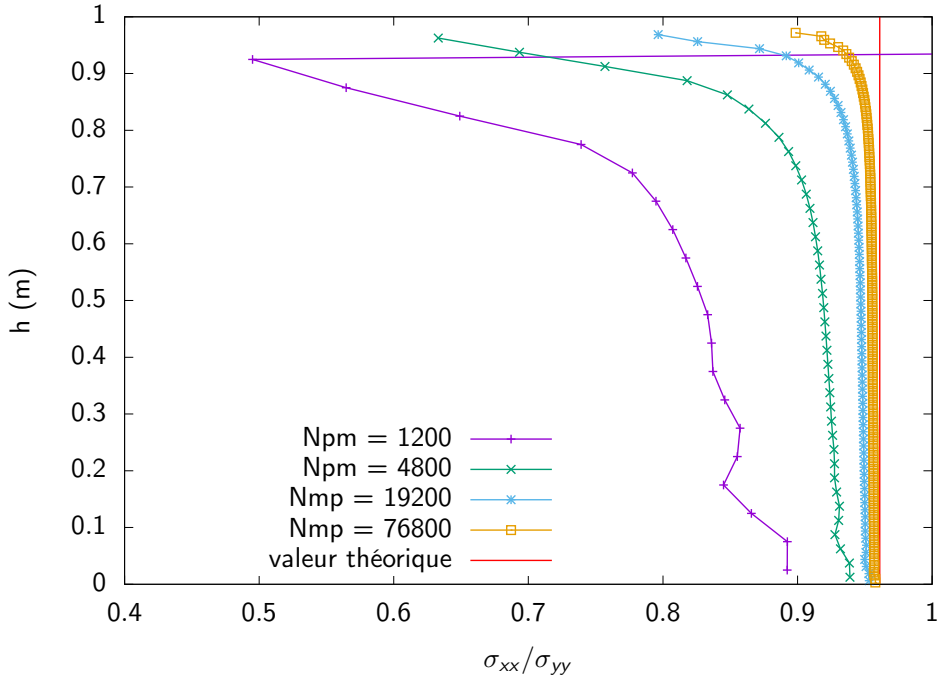


Figure 5 – Nombre de MPs

Modèle élastique : $\nu = 0.49, E = 1e6kPa, L = 3m$

$$K_0 = \frac{\sigma_{xx}}{\sigma_{yy}} = \frac{\nu}{1-\nu} == \frac{0.49}{1-0.49} = 0.961$$

# Stabilisation élastique - Effet de bord

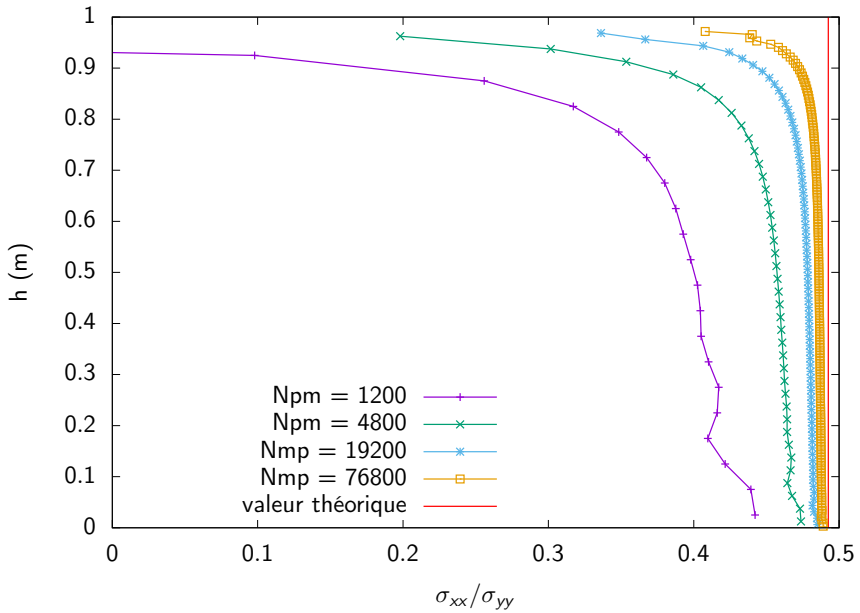


Figure 6 – Bande au milieu

Modèle élastique :
$\nu = 0.33, E = 1e6kPa, L = 3m$

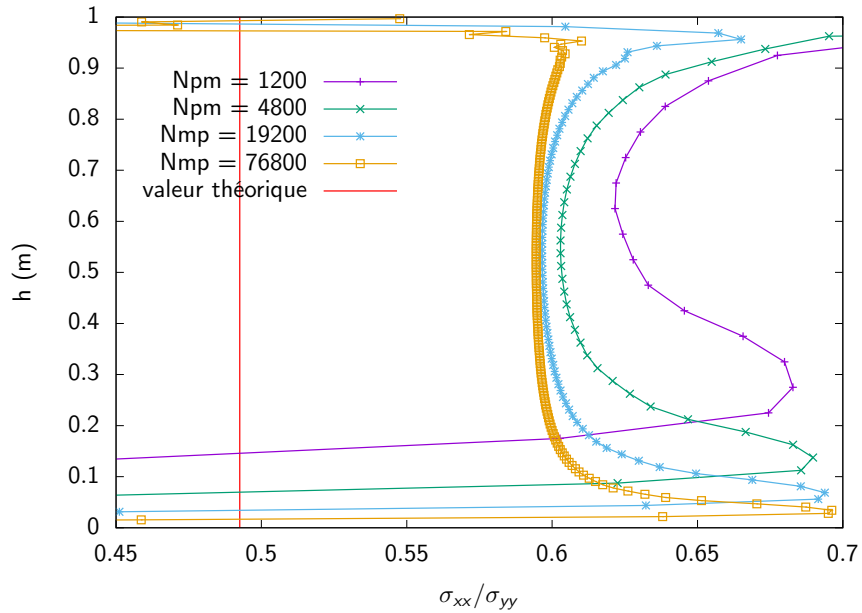


Figure 7 – Bande au bord

Modèle élastique :
$\nu = 0.33, E = 1e6kPa, L = 3m$

# Stabilisation élastique - comparer lois constitutives

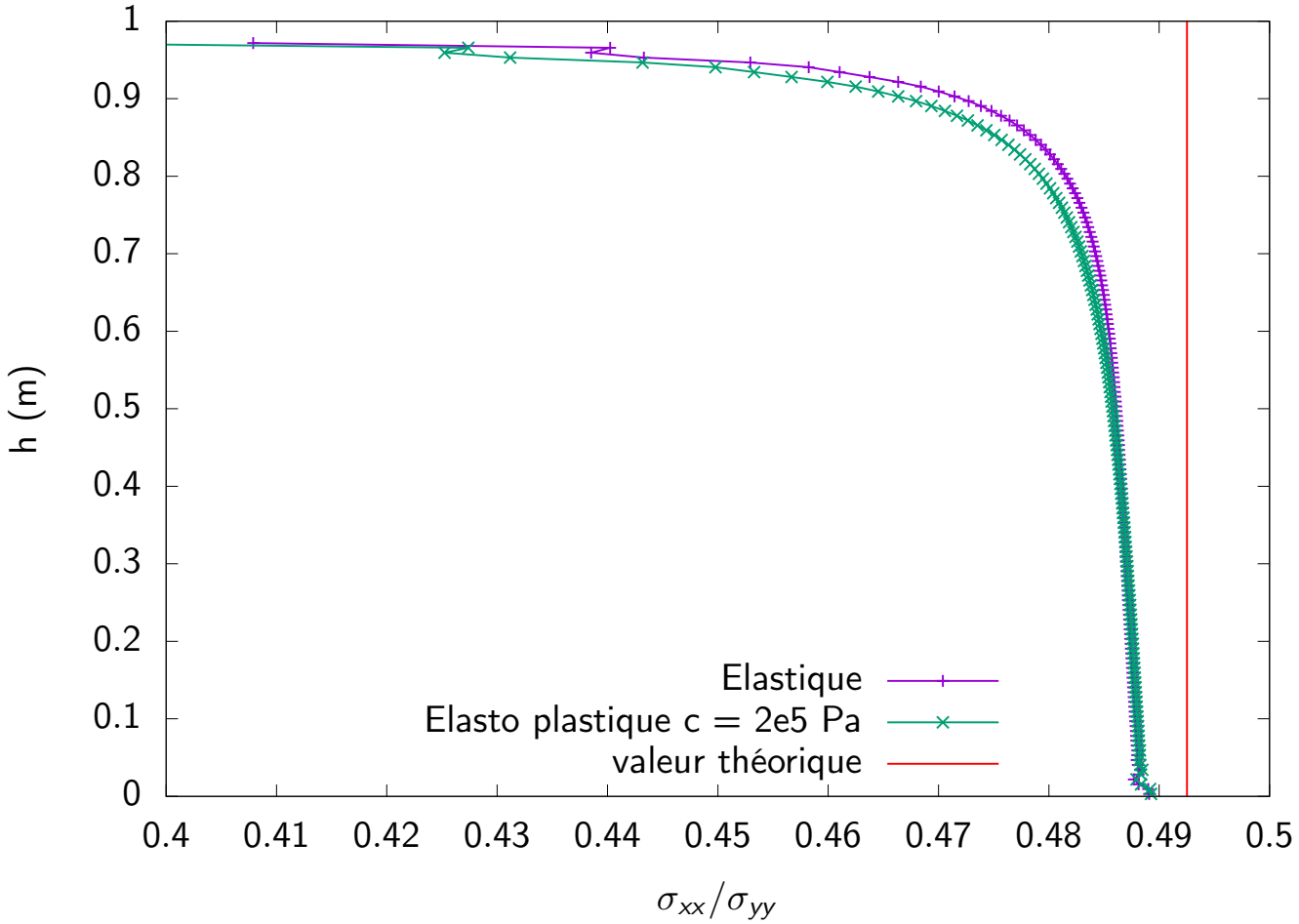


Figure 8 – Comparer la bande au milieu entre modèle élastique ($\nu = 0.33, E = 1e9Pa$) avec modèle élasto-plastique ($\nu = 0.33, E = 1e9Pa, c = 2e5Pa$)

# Stabilisation élastique - Lignes fixées

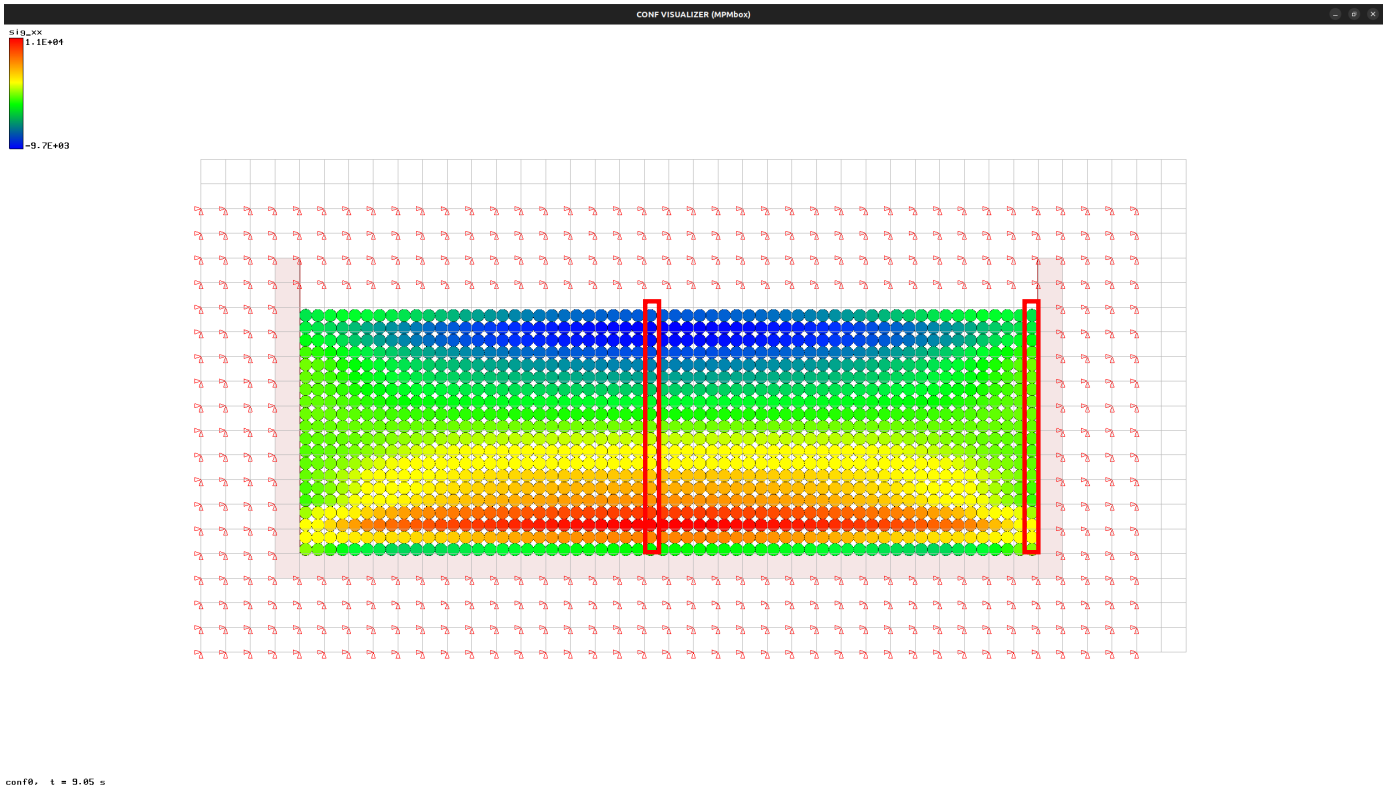


Figure 9 – Le maillage et les lignes fixées

$$\mathrm{L} = 3\mathrm{m},\ \mathrm{H} = 1\mathrm{m},\ \rho = 2700\ \mathrm{kg/m^3},\ N_{\mathrm{PM}} = 1200,\ \mu_{\text{mur-PM}} = 0$$

# Stabilisation élastique - Lignes fixées

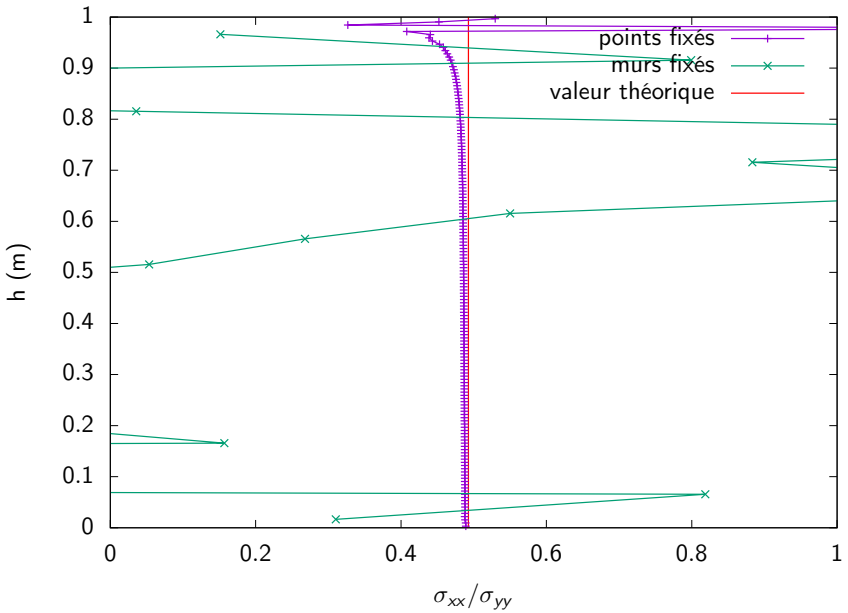


Figure 10 – Bande au milieu

Modèle élastique :
$\nu = 0.33, E = 1e6kPa, L = 3m$

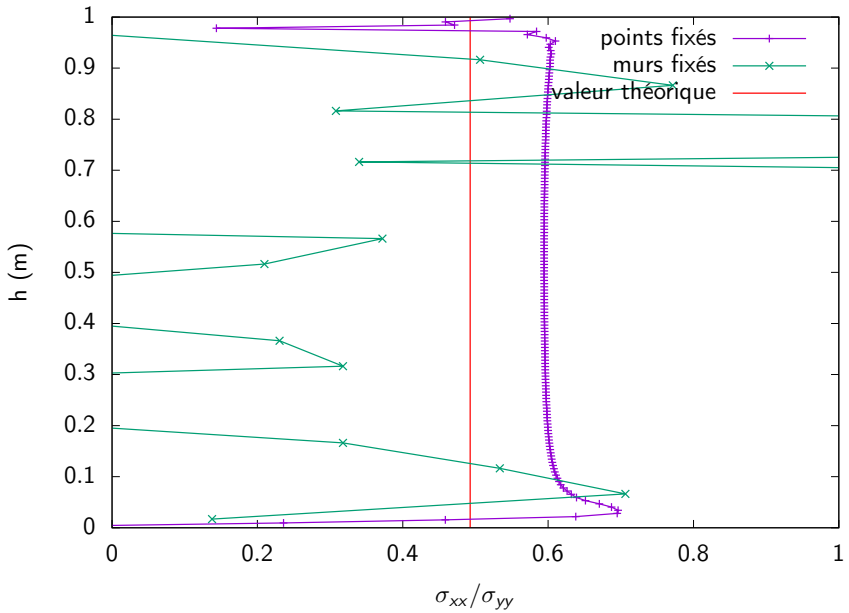


Figure 11 – Bande au bord

Modèle élastique :
$\nu = 0.33, E = 1e6kPa, L = 3m$

# Stabilisation - Théorie élastique

$$Mod\,elastique : \nu = 0.33, E = 1e6kPa, L = 3m, H = 1m \; \sigma_{yy} = \rho\, g\, H = 2700 \cdot 9.81 \cdot 1$$

(1)

$$F_{yy} = \sigma_{yy} \cdot L = 26487 \cdot 3 =$$

(2)

$$\sigma_{xx} = K_0\, \sigma_{yy} = K_0\, \gamma y$$

(3)

$$F_{xx} = \int_0^H K_0 \gamma y \, dy = \frac{1}{2} \frac{\nu}{1 -}$$

(4)

$$t_c = \frac{\pi}{20} \sqrt{\frac{m}{k_n}} = \frac{\pi}{20} \sqrt{\frac{0.05^2}{}}$$

(5)

# Stabilisation élastique - Lignes fixées

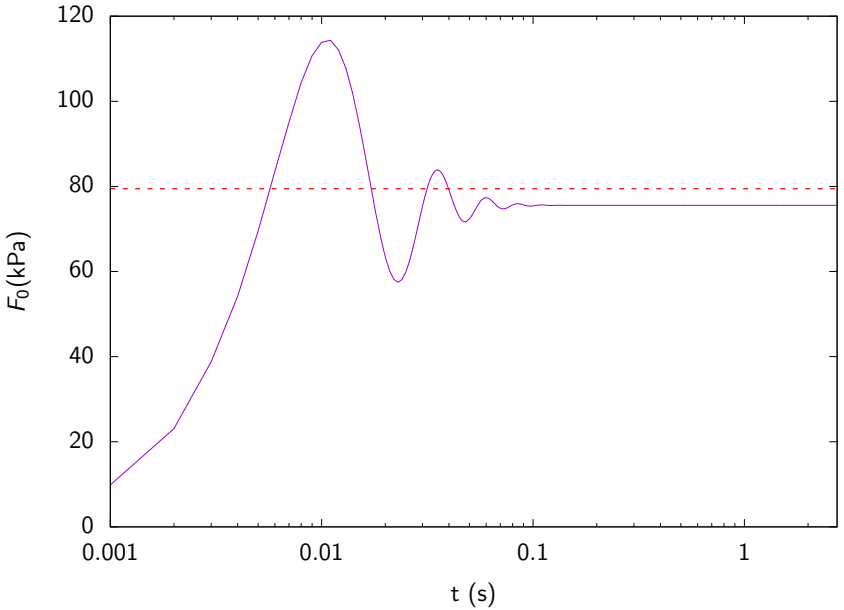


Figure 12 – Force sur le mur au fond

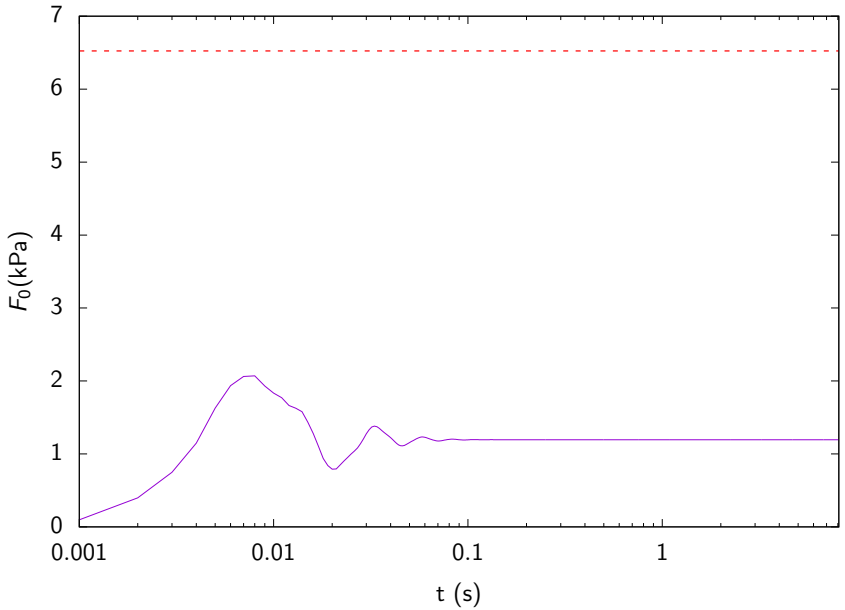


Figure 13 – Force sur le mur à droite

Modèle élastique : $\nu = 0.33, E = 1e6kPa, L = 3m$

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has been added to receive it.
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