Maillages incompatibles

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Master 2 TACS

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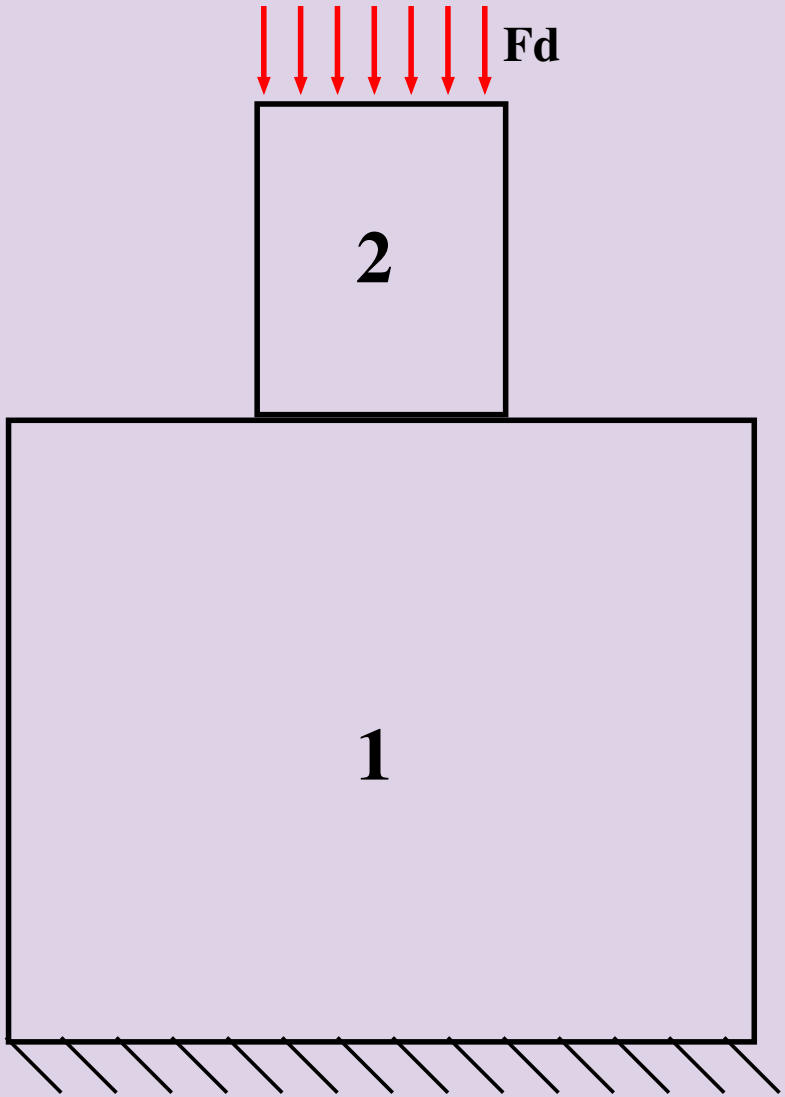
Liaison entre deux cubes

Deux cubes

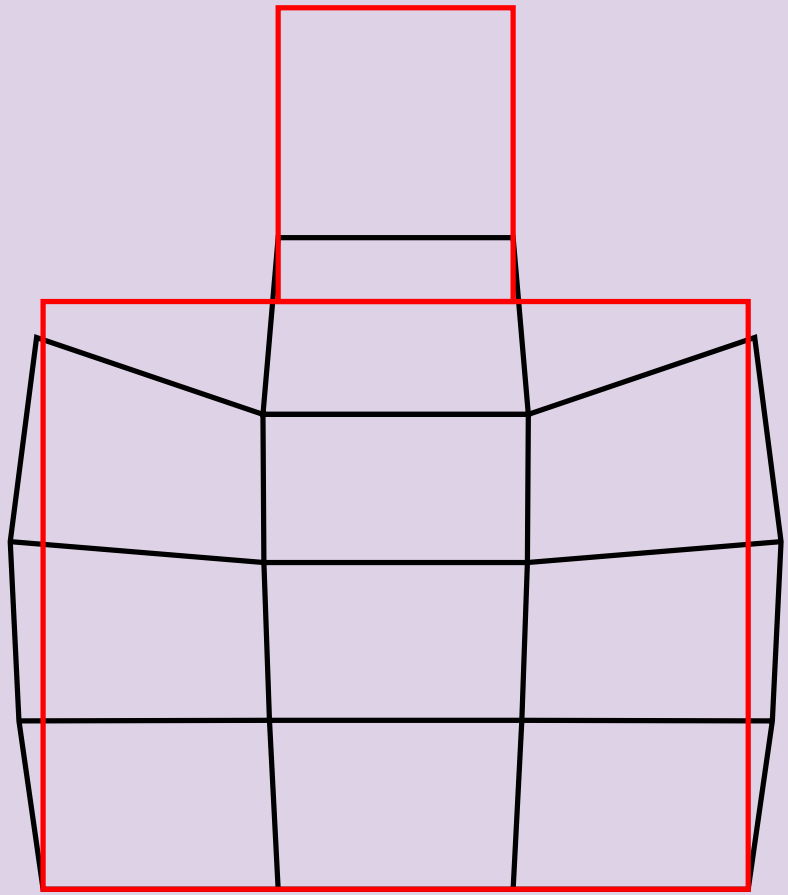
- Relation maître-esclave
- Relations maître-maître
- Maillage fin - grossier

Cubes : maillage grossier

problème

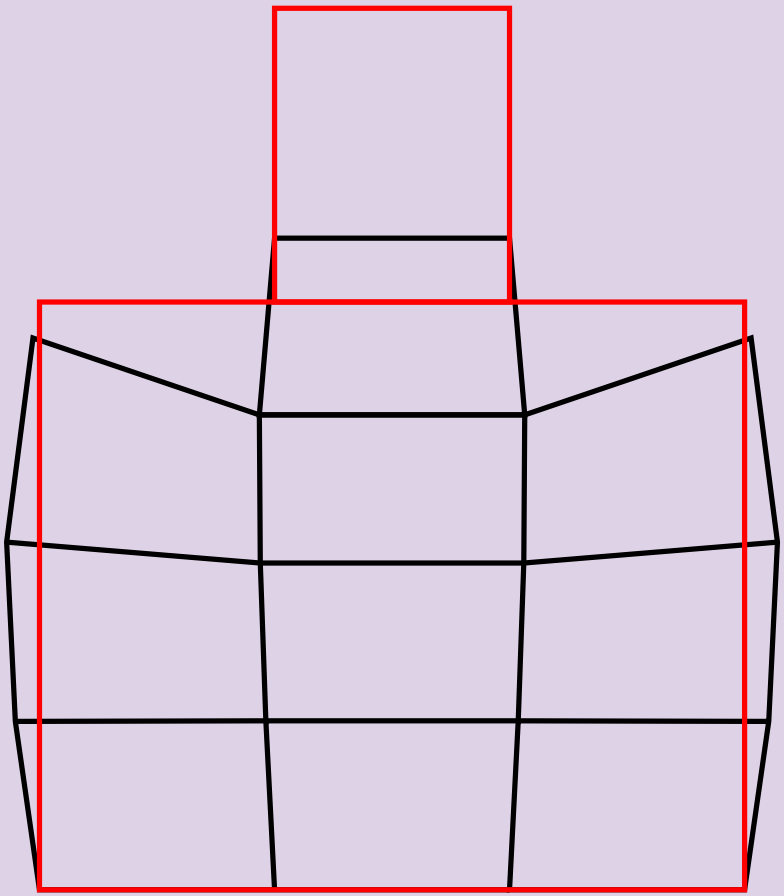


référence : compatible

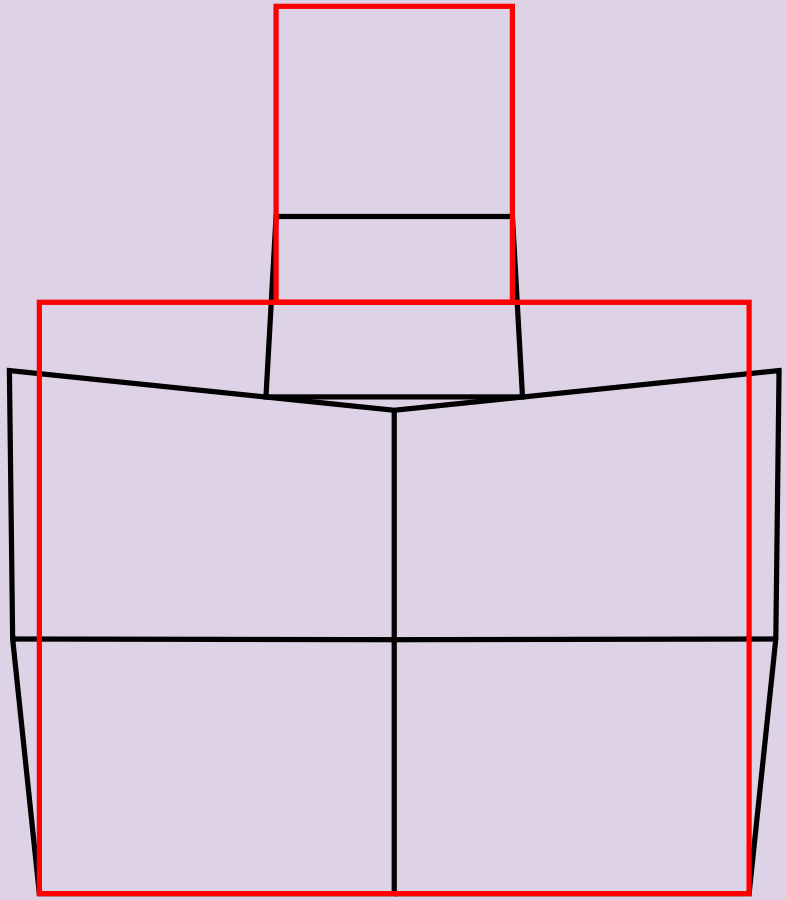


Cubes : maillage grossier : maître-esclave

Référence

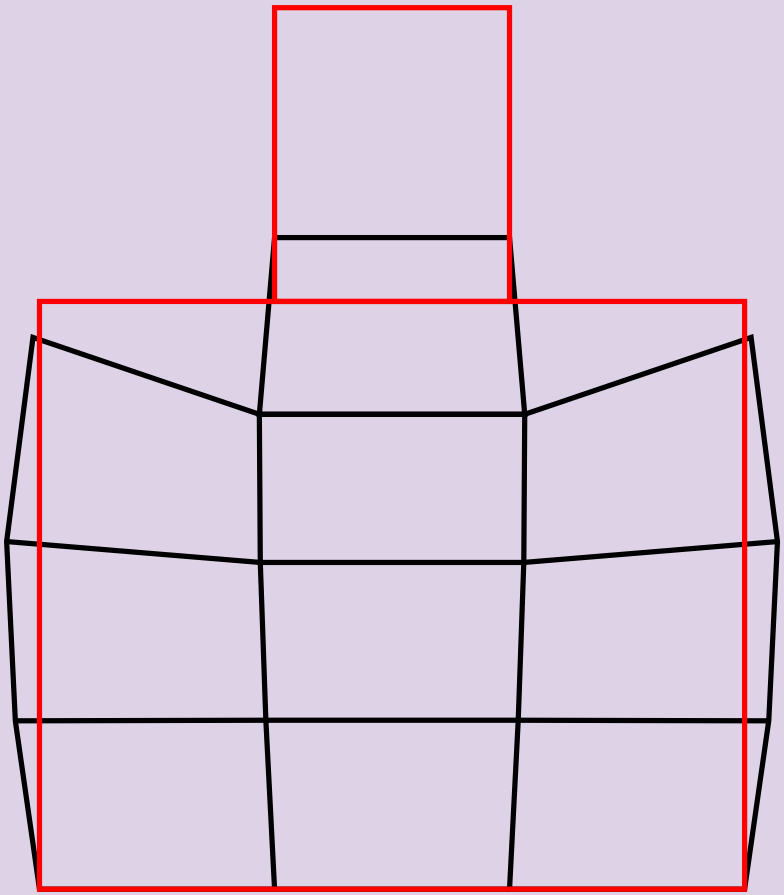


2 esclave - 1 maître

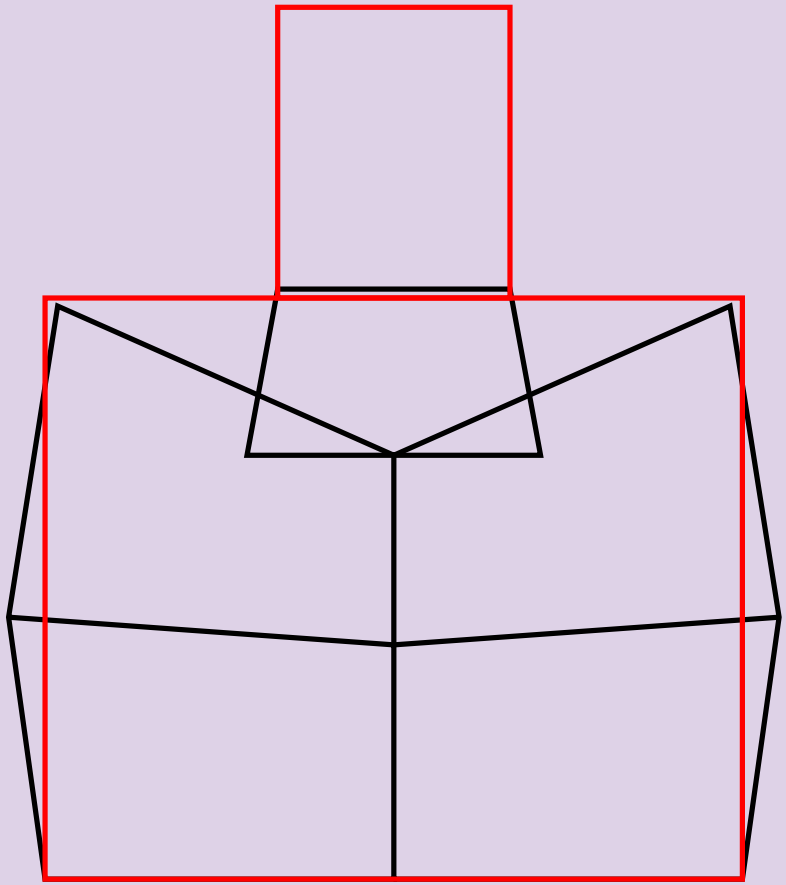


Cubes : maillage grossier : esclave-maître

Référence

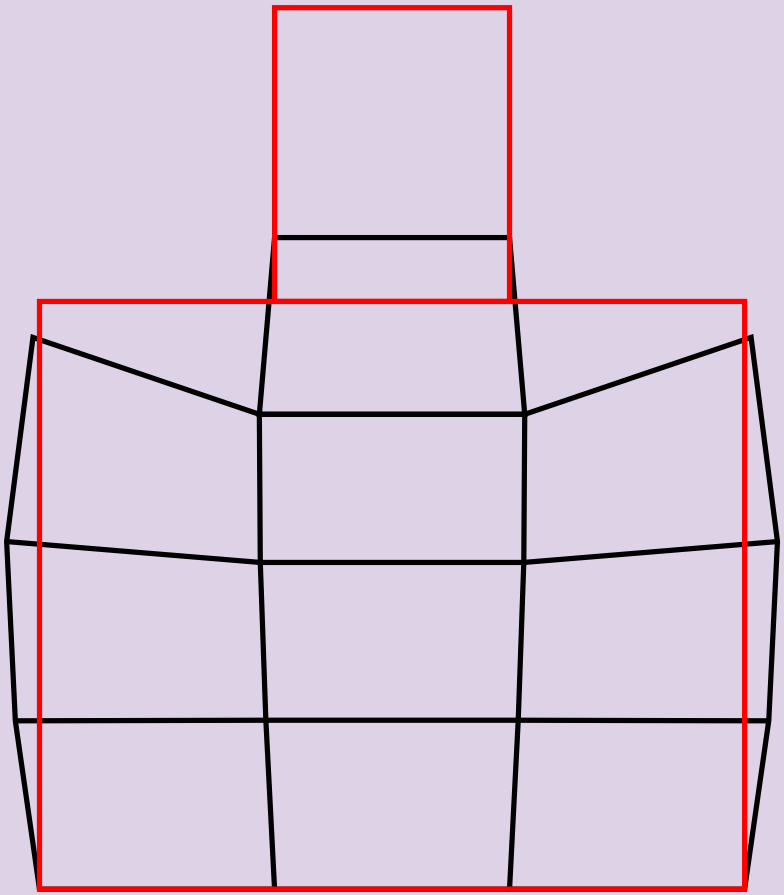


1 esclave - 2 maître

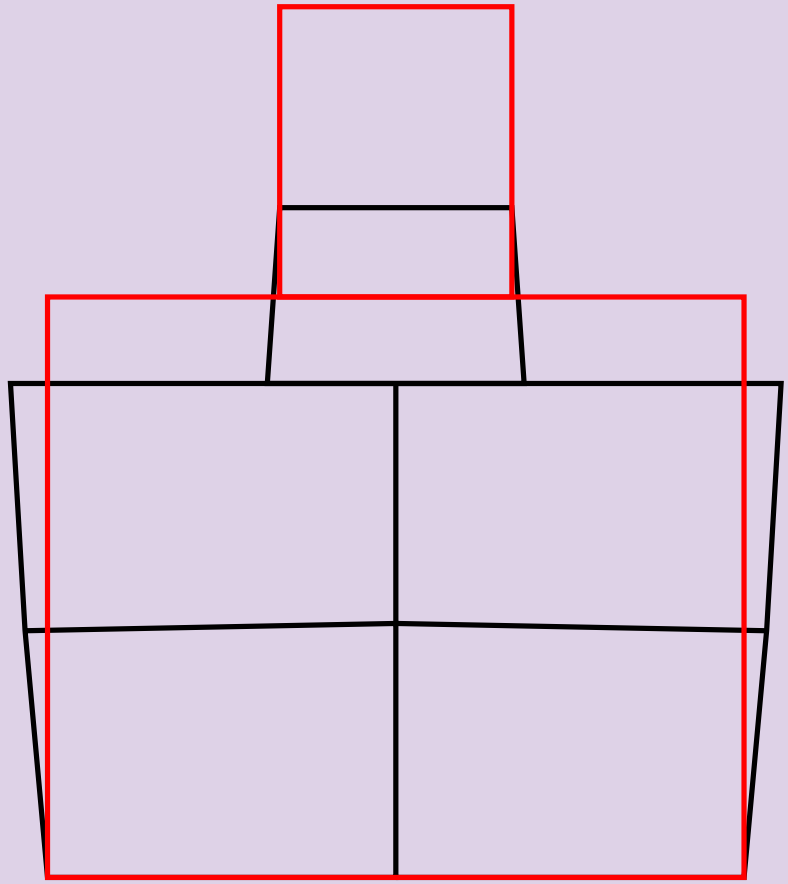


Cubes : maillage grossier : maître-maître

Référence

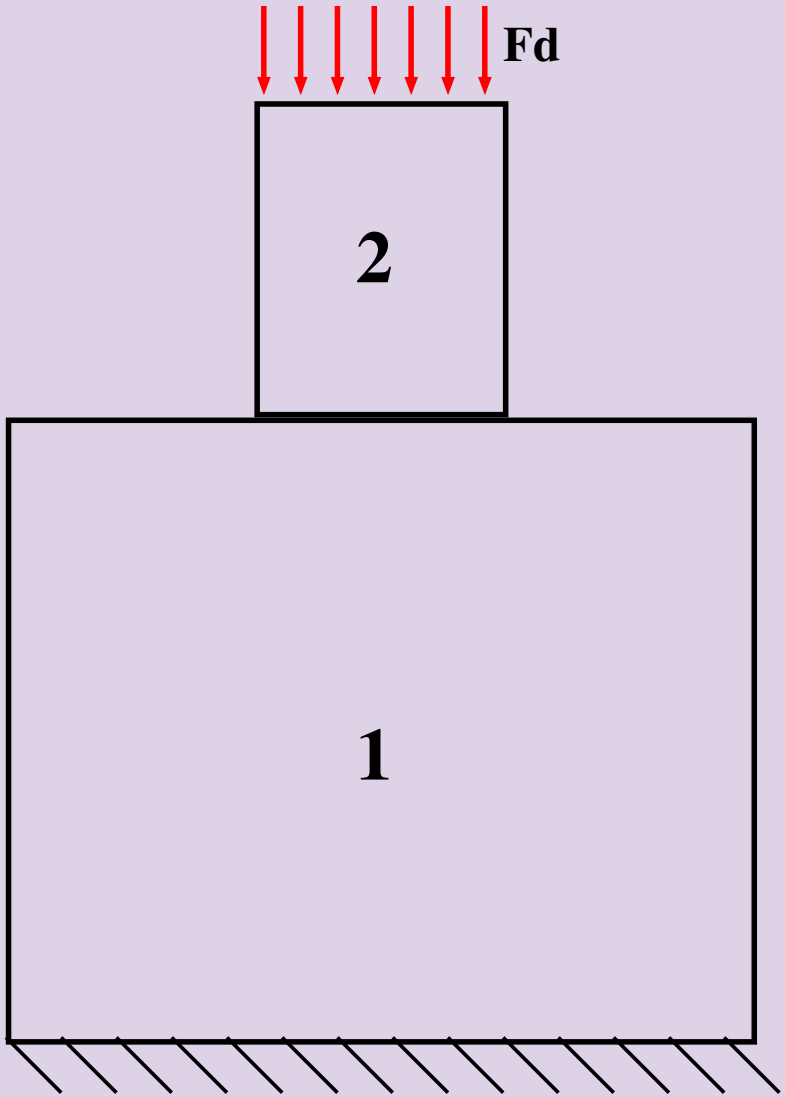


1 & 2 maîtres : blocage

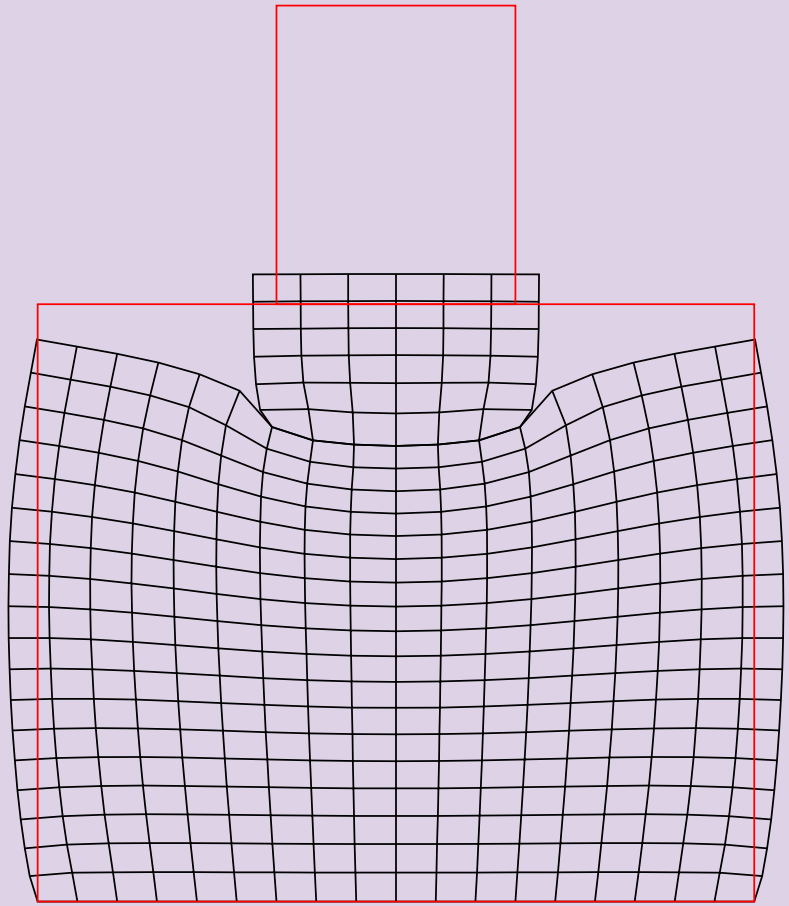


Cubes : maillage fin

problème

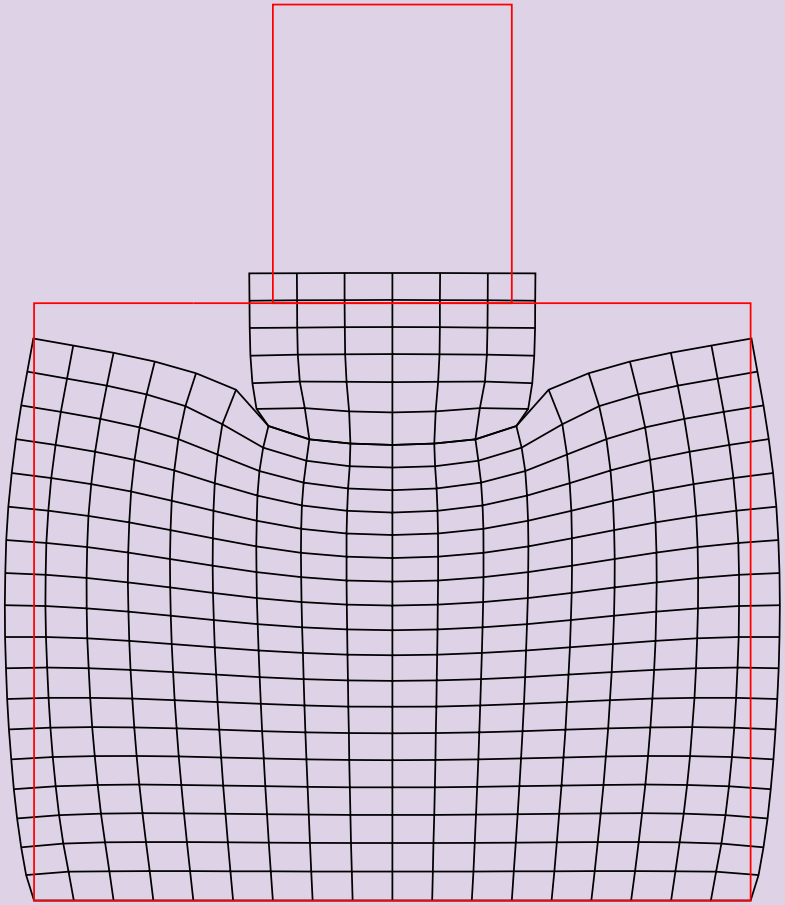


référence : compatible

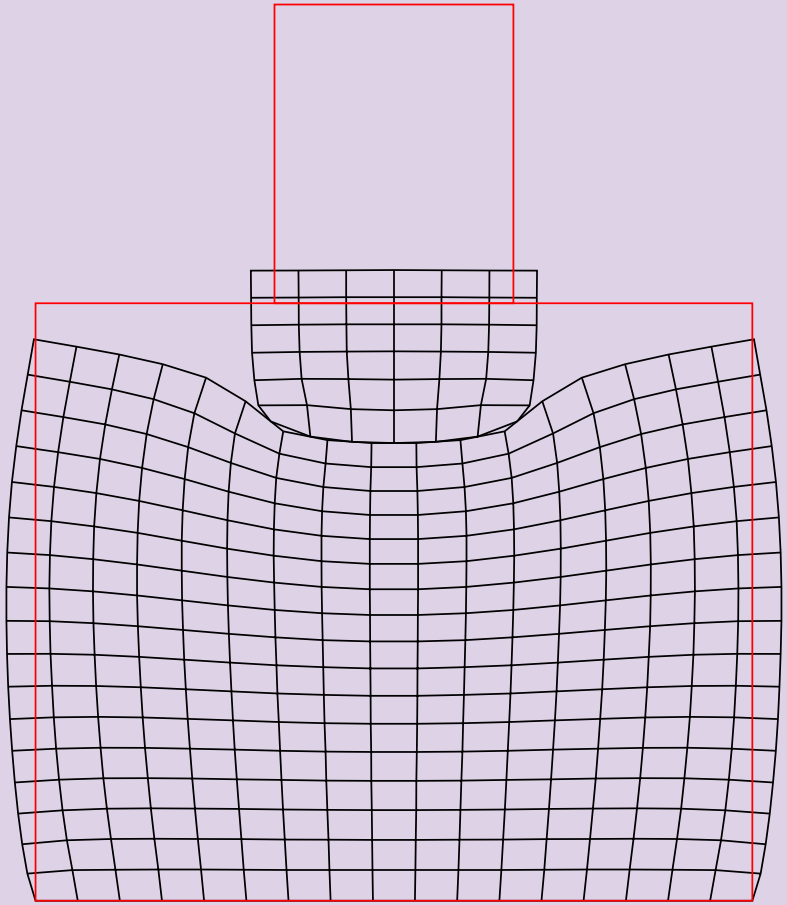


Cubes : maillage fin : maître-esclave

Référence

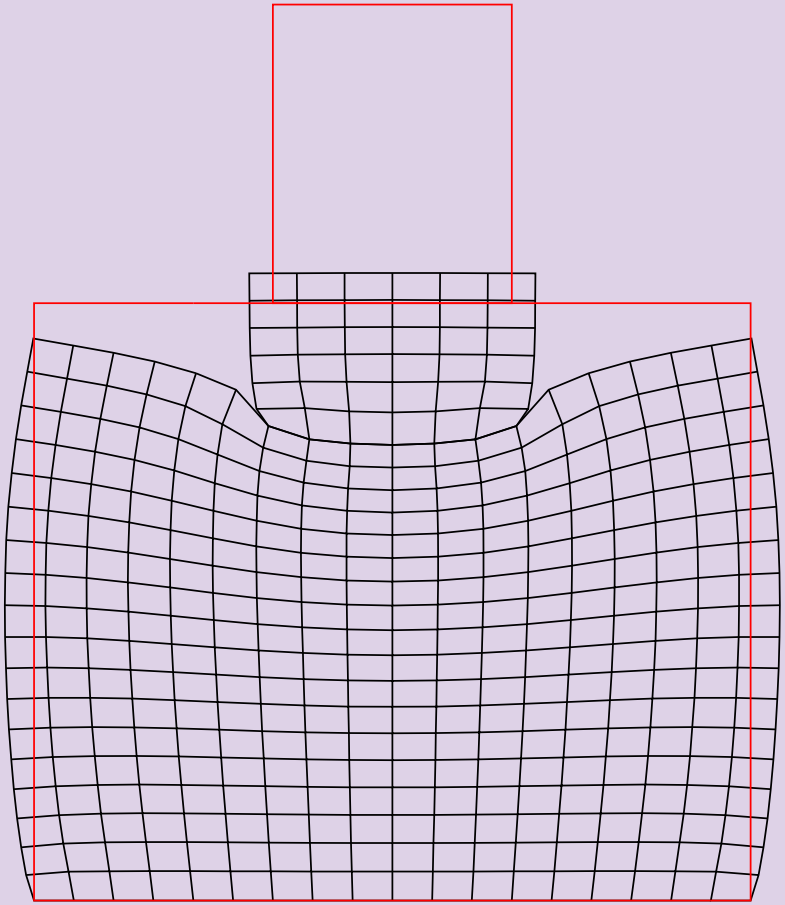


2 esclave - 1 maître

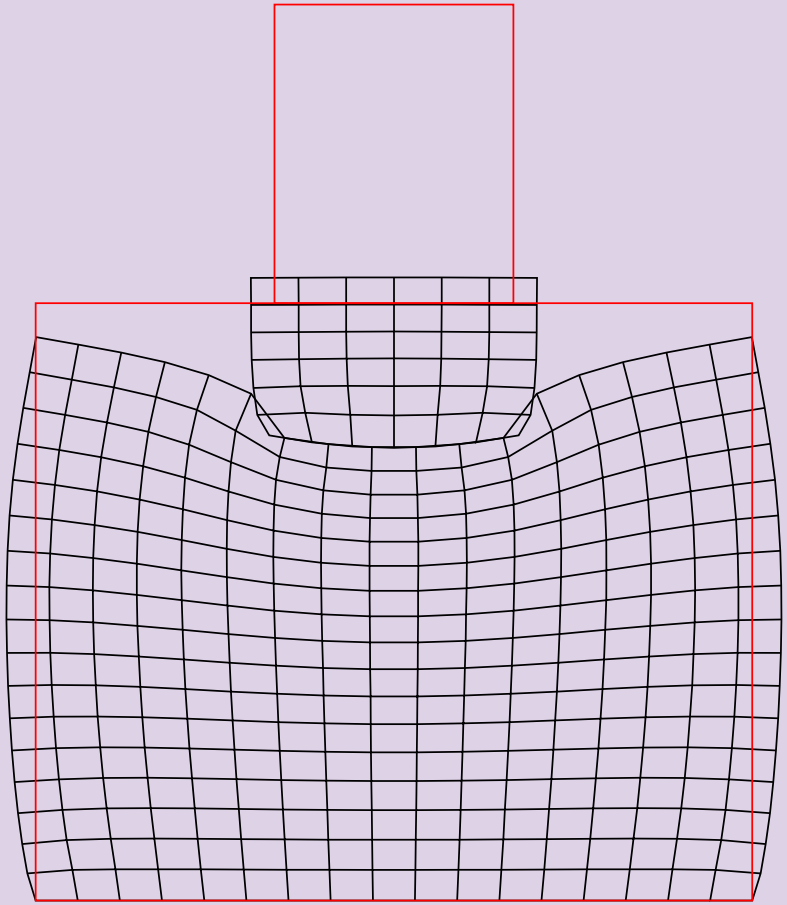


Cubes : maillage fin : esclave-maître

Référence

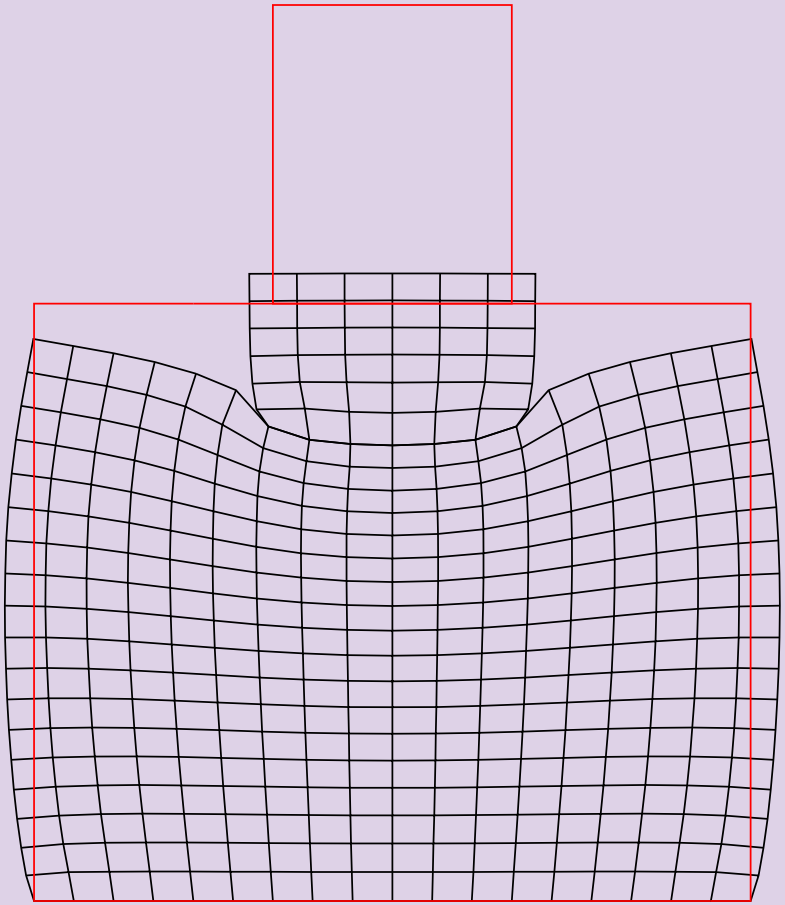


1 esclave - 2 maître

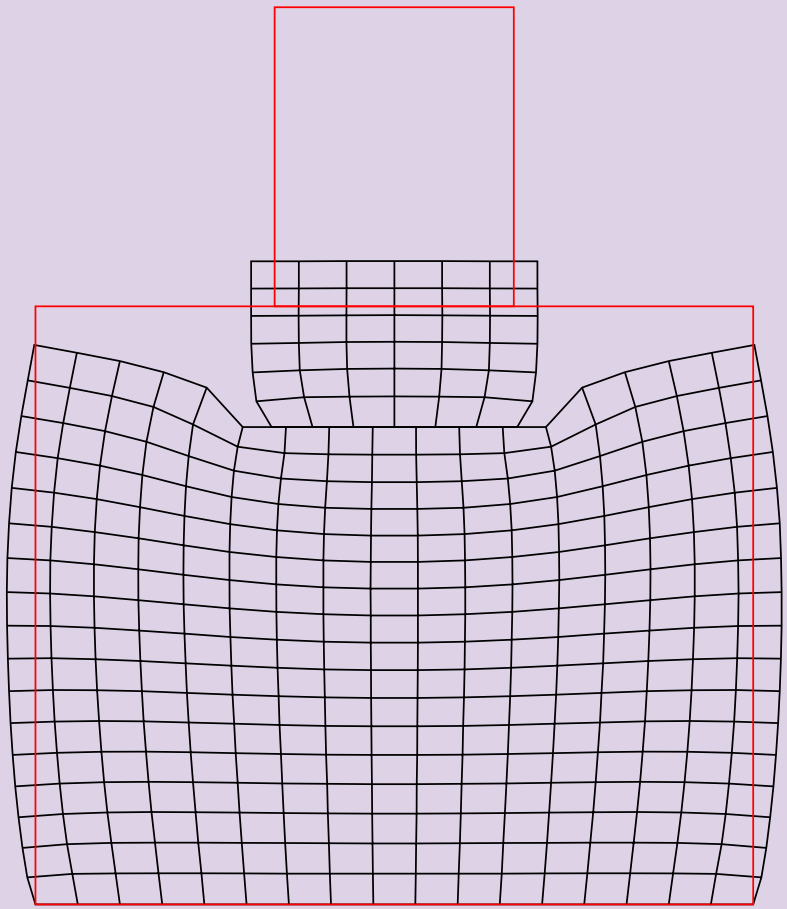


Cubes : maillage fin : maître-maître

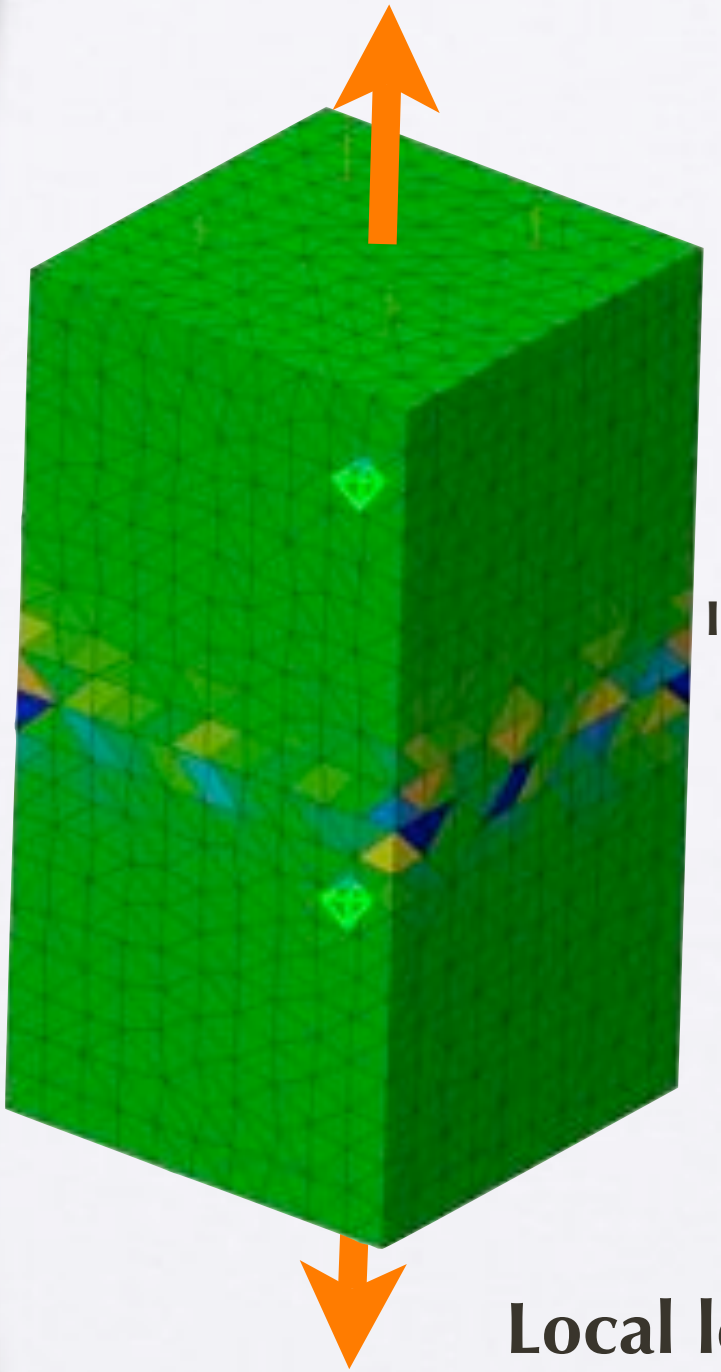
Référence



1 & 2 maîtres : blocage

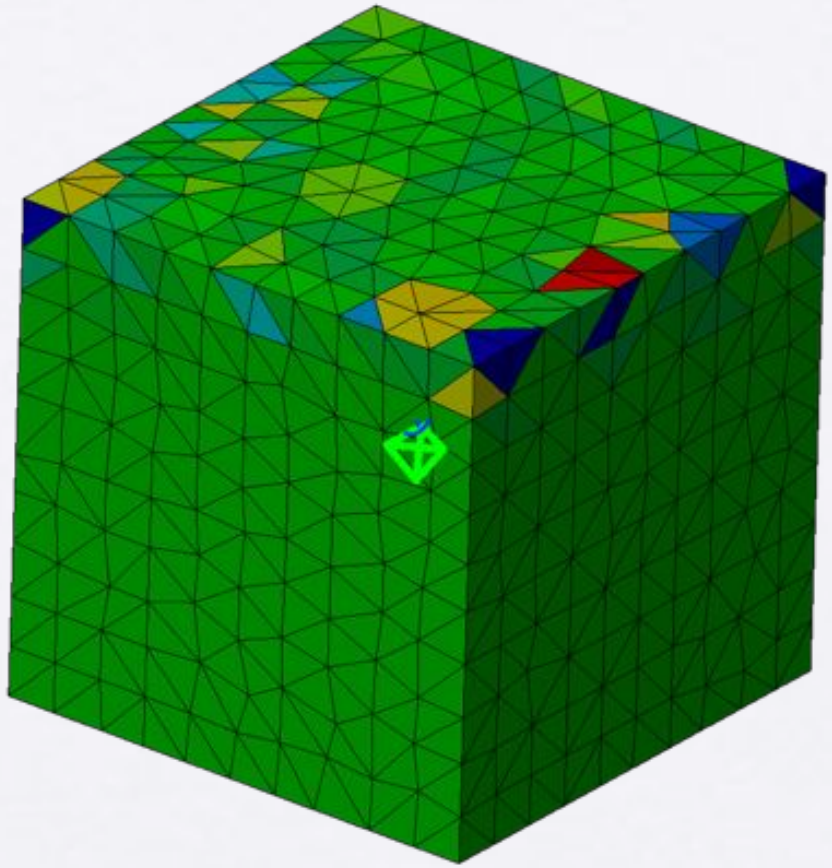


Simple traction test



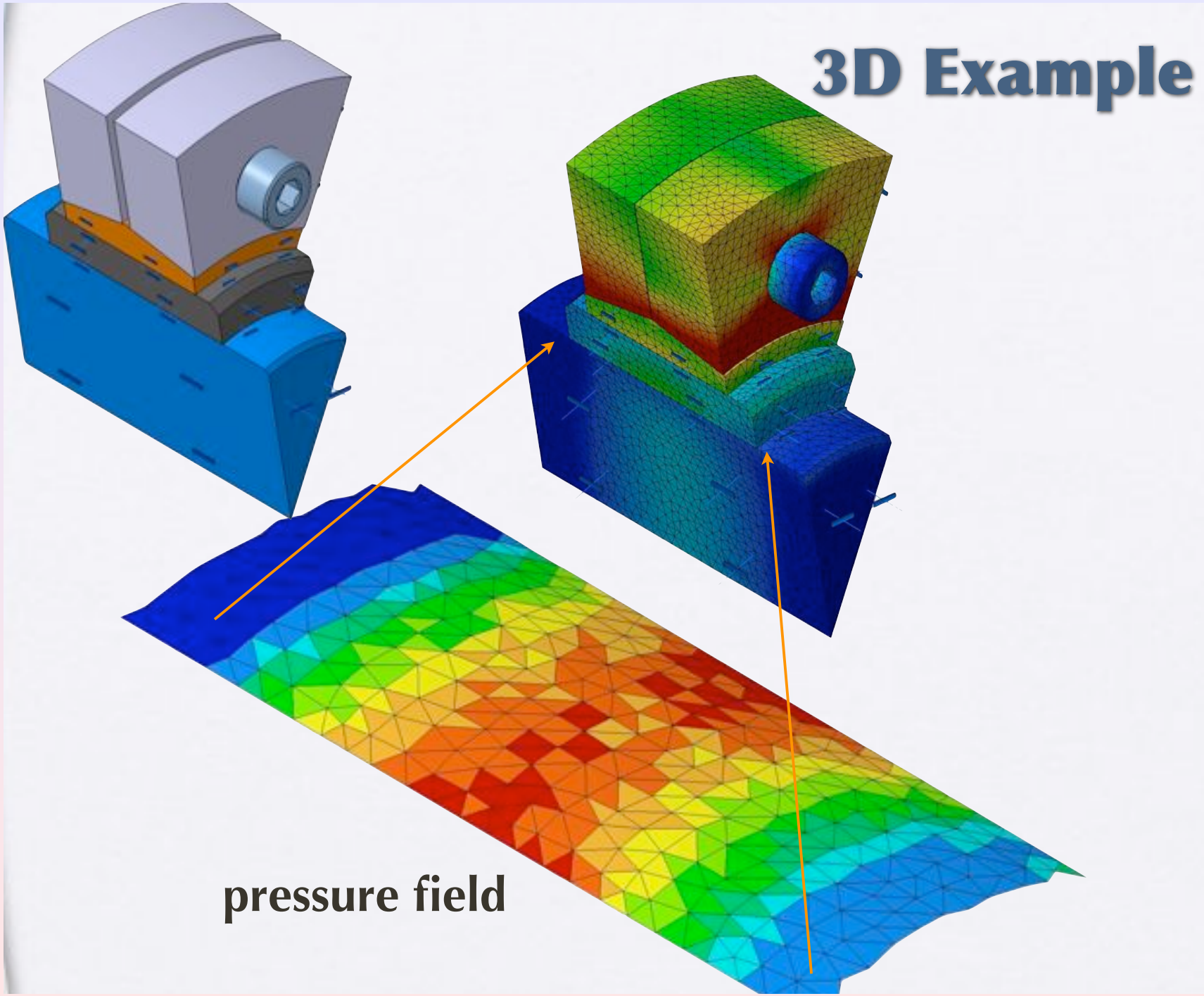
Incompatible perfect connection

Maximum Local Error : 30%!

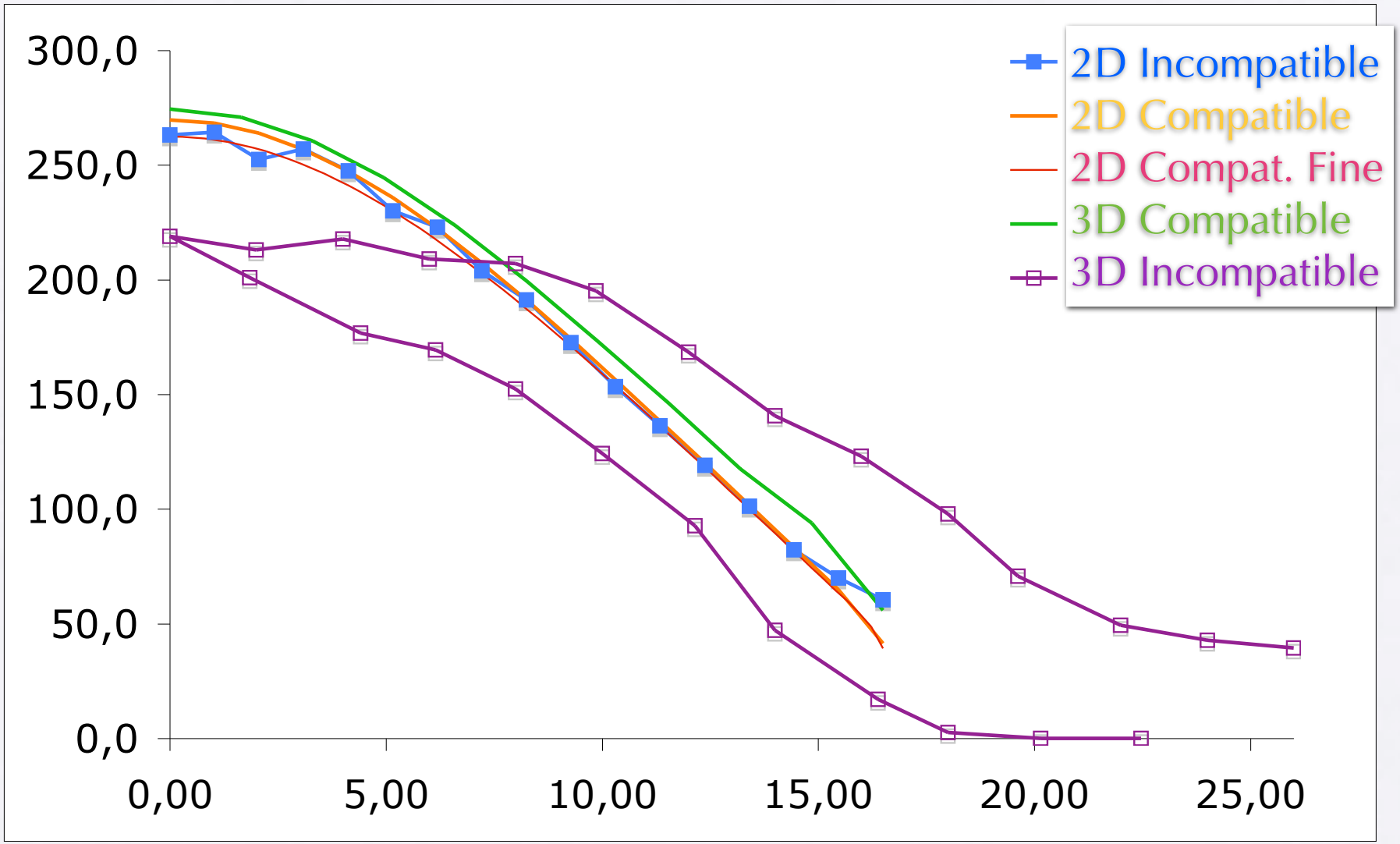


Local lockings !

3D Example



Contact pressure along the interface



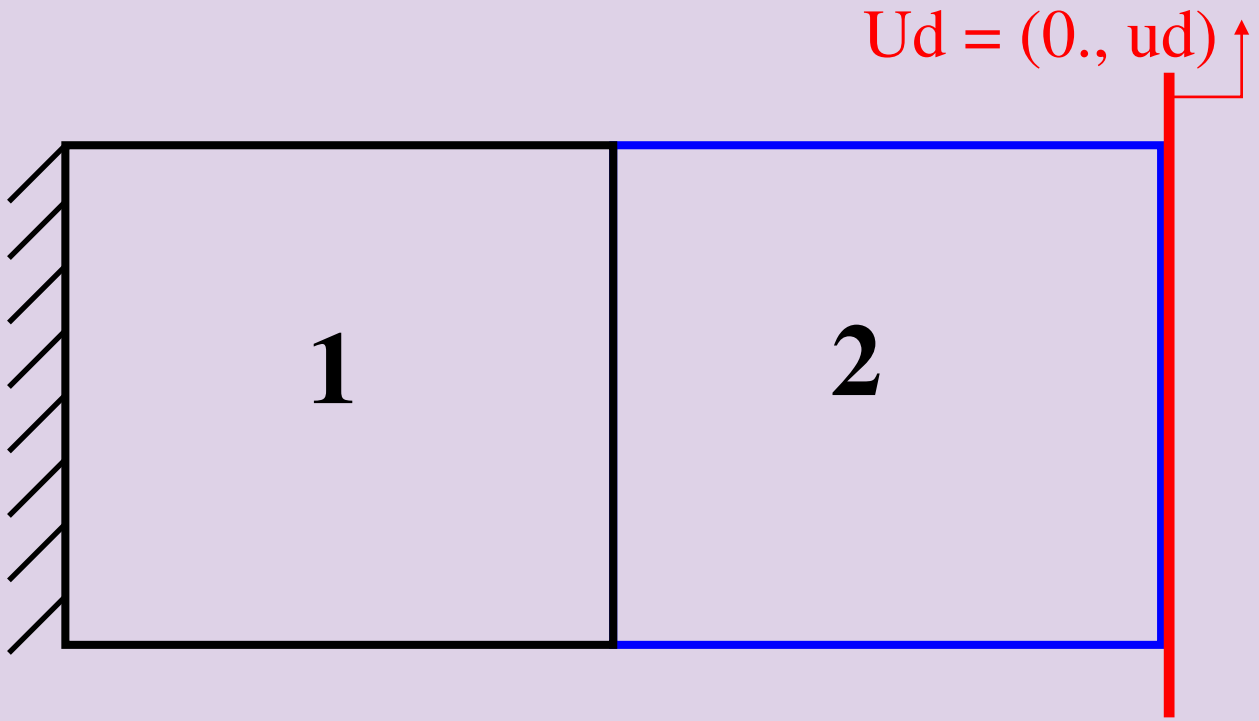
Cisaillement

Problème de cisaillement

- Relation maître-esclave
- Relations maître-maître
- Raccord en partie linéaire
- Raccord en partie quadratique

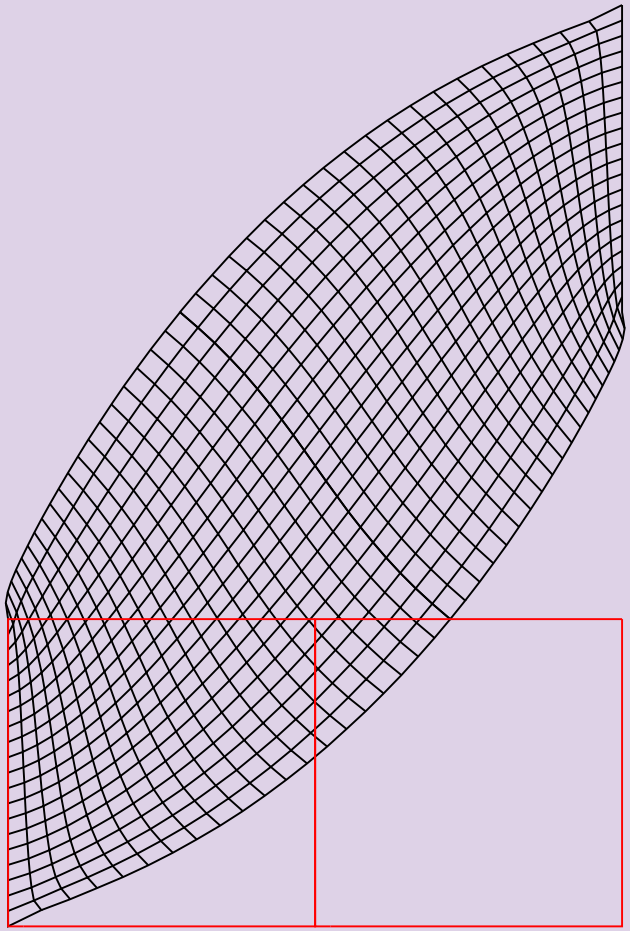
Cisaillement

Problème

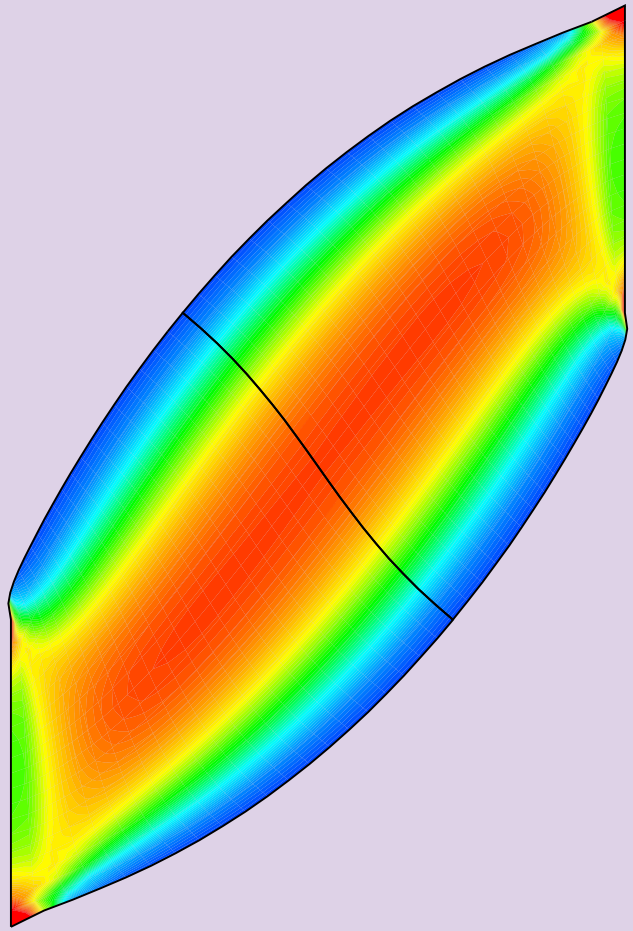


Cisaillement

référence : déformée

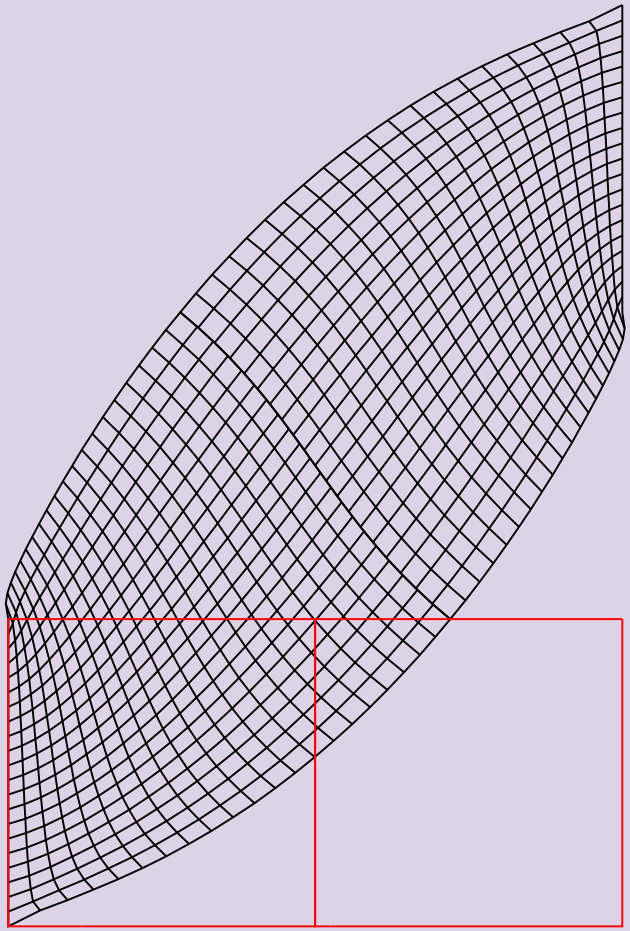


référence : σ_{xy}

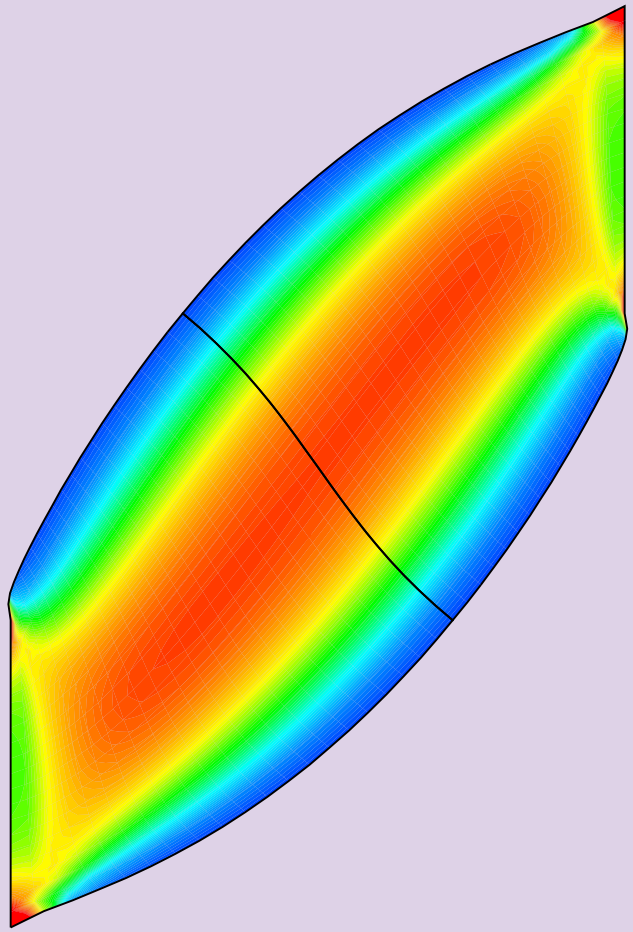


Cisaillement : esclave-maître

déformée

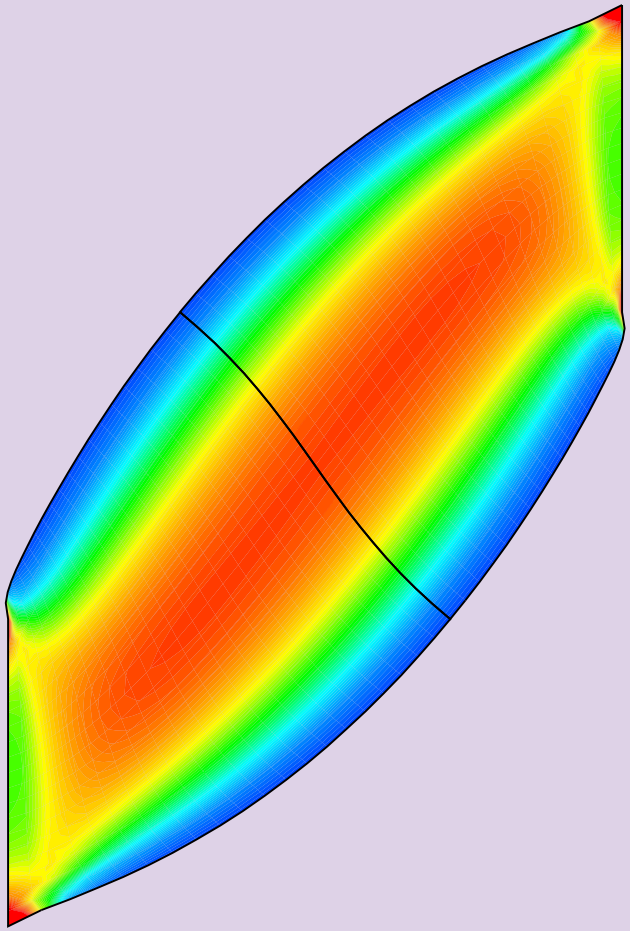


σ_{xy}

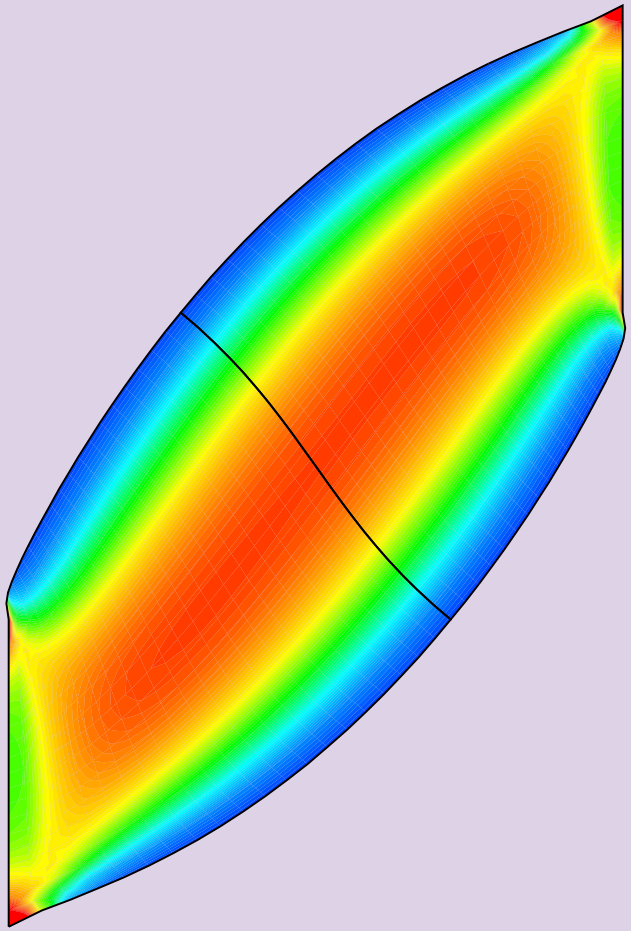


Cisaillement : esclave-maître

référence

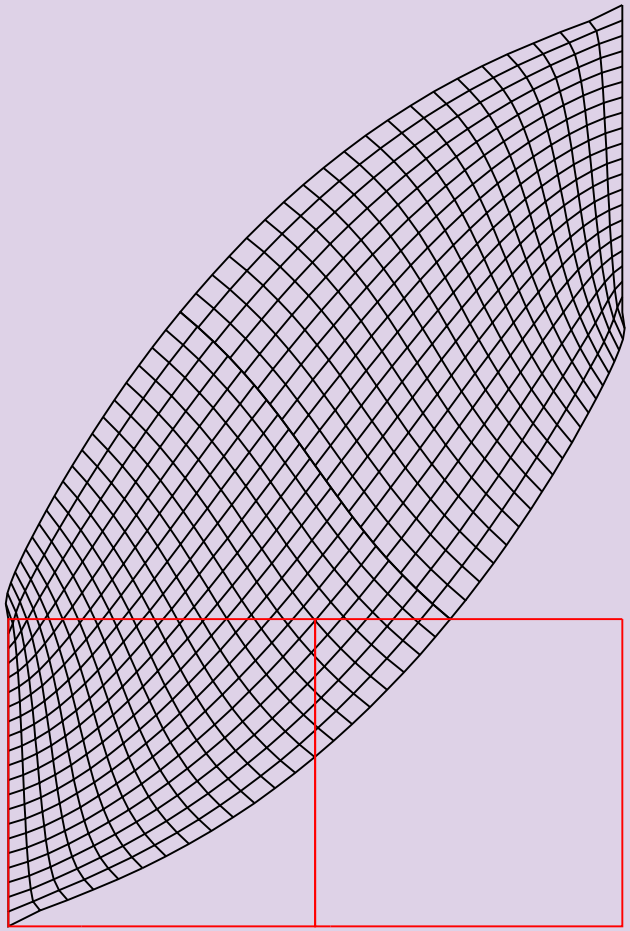


esclave-maître

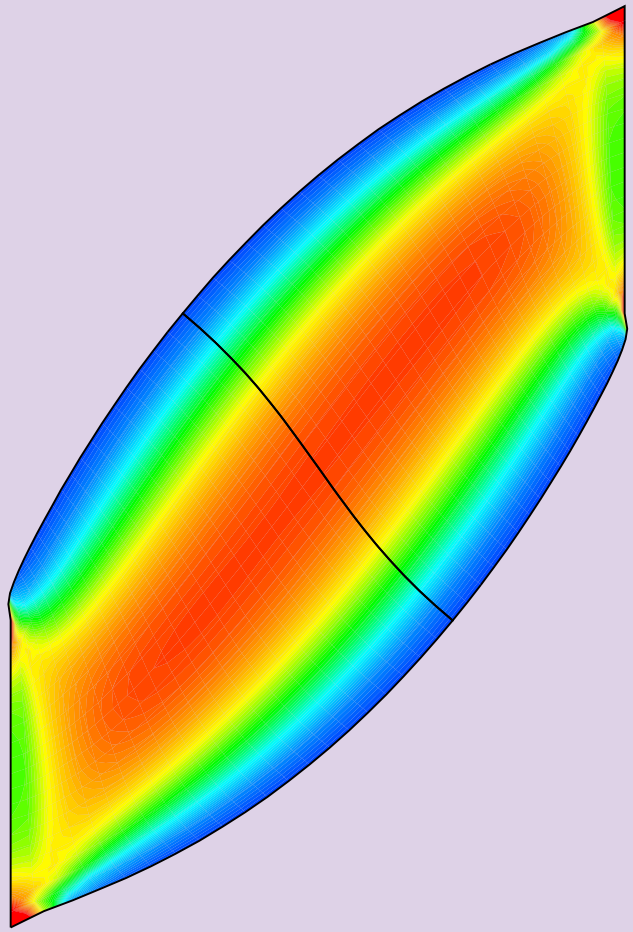


Cisaillement : maître-esclave

déformée

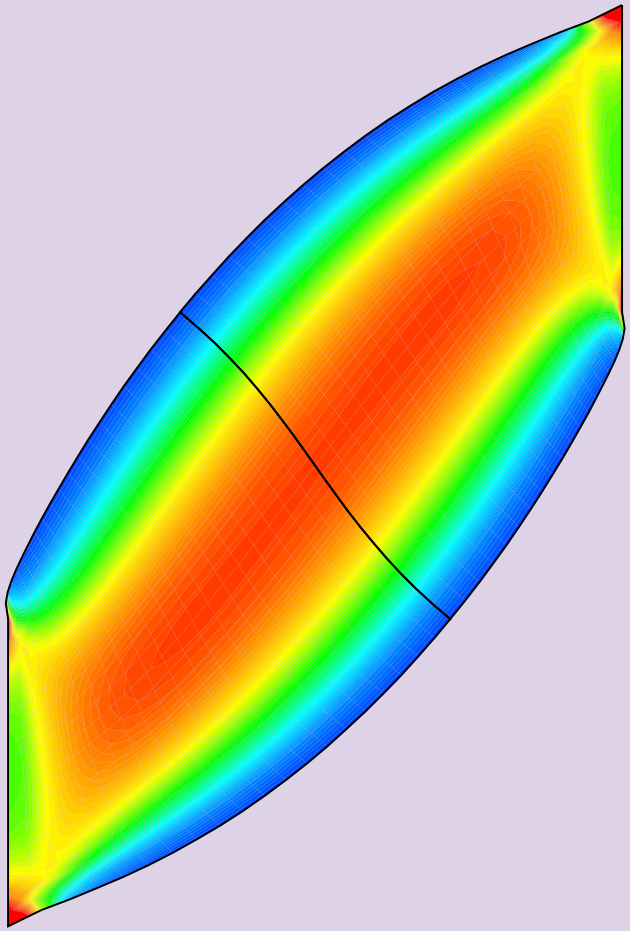


σ_{xy}

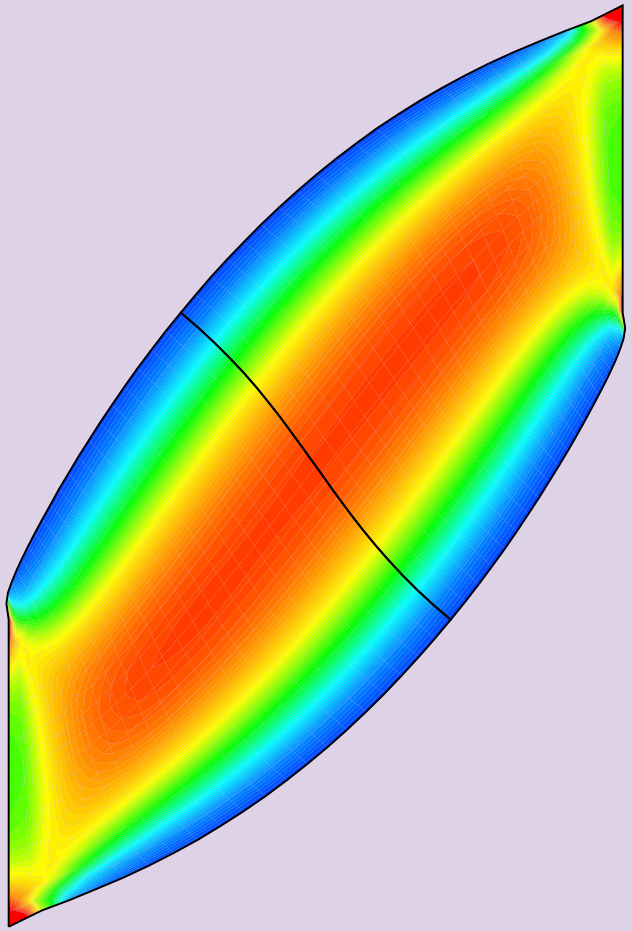


Cisaillement : maître-esclave

référence

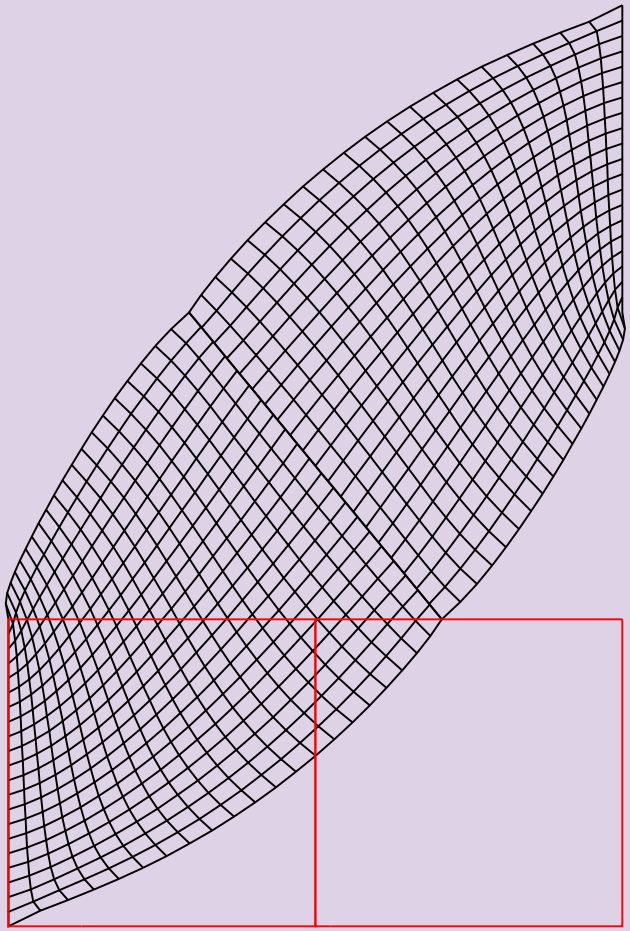


maître-esclave

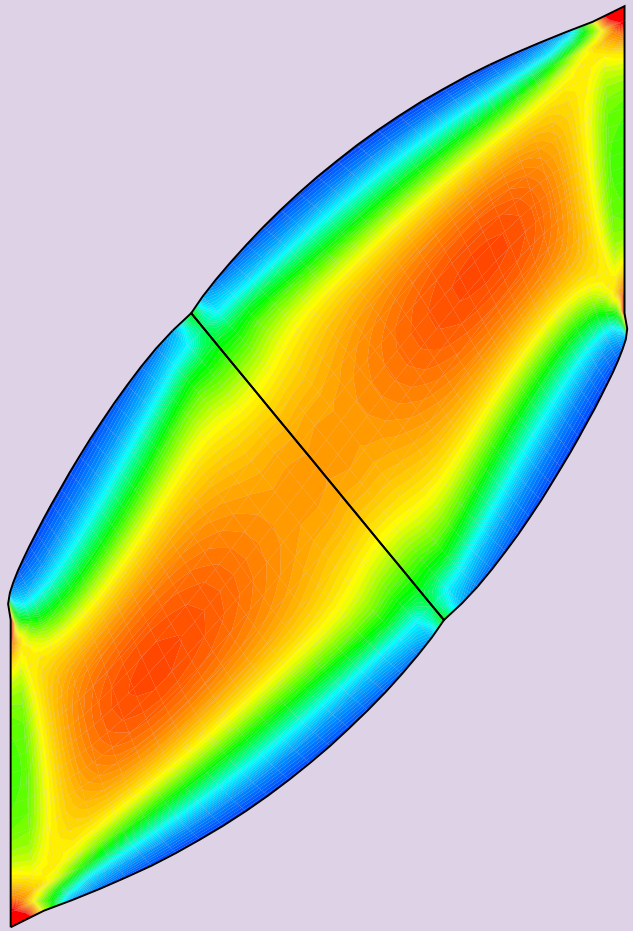


Cisaillement : maître-maître

déformée

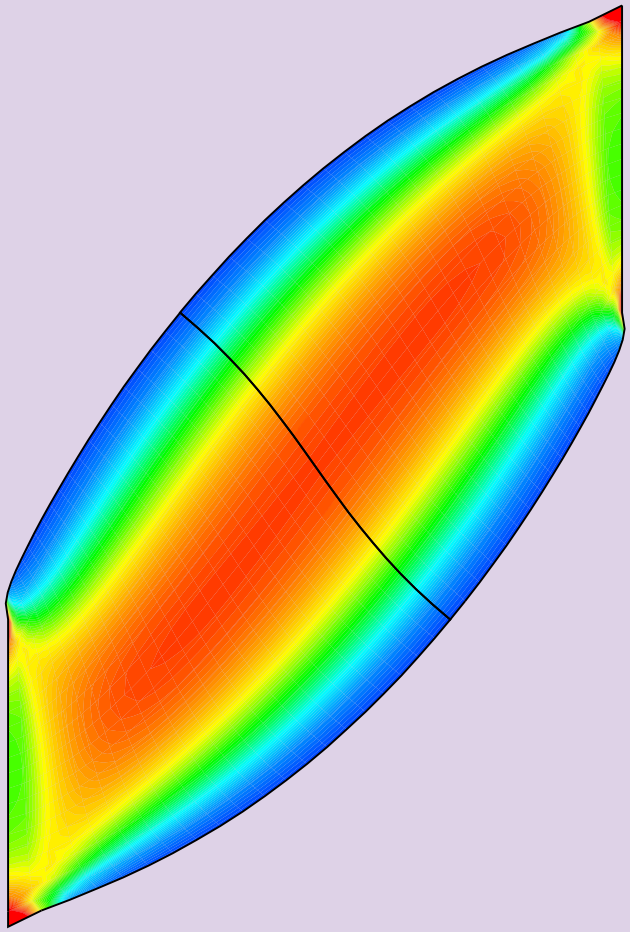


σ_{xy}

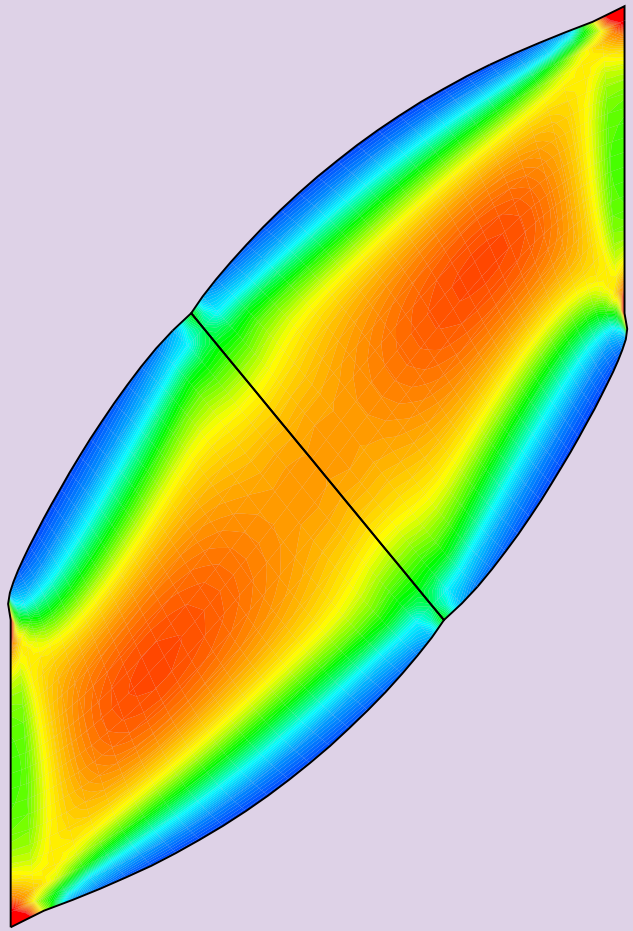


Cisaillement : maître-maître

référence

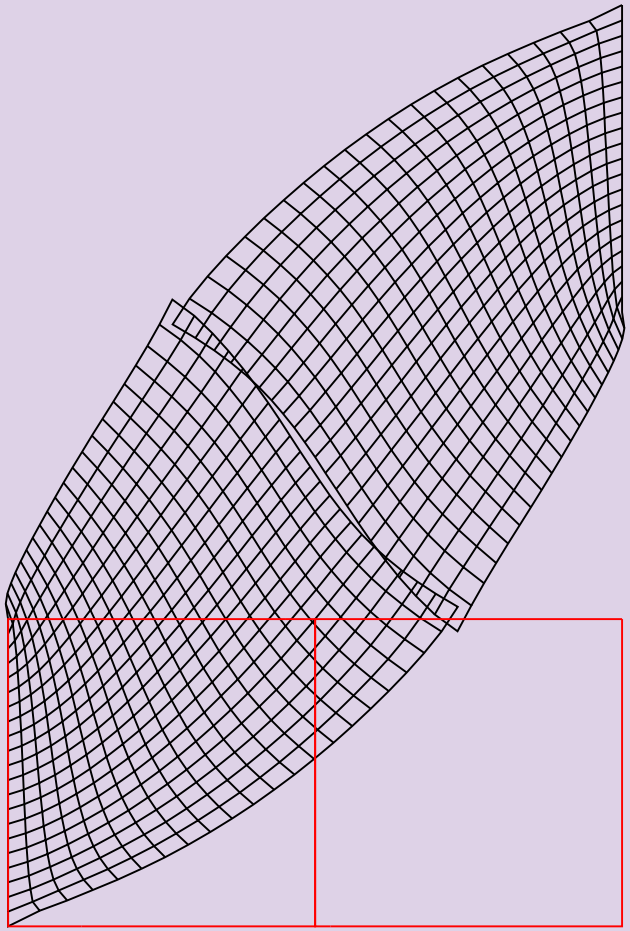


maître-maître : blocage

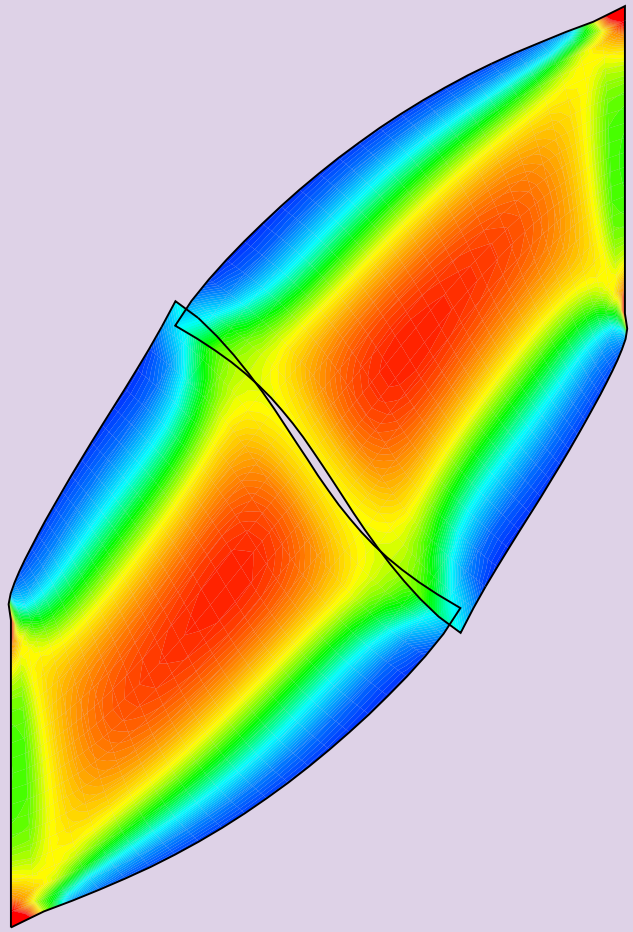


Cisaillement : partie linéaire

déformée

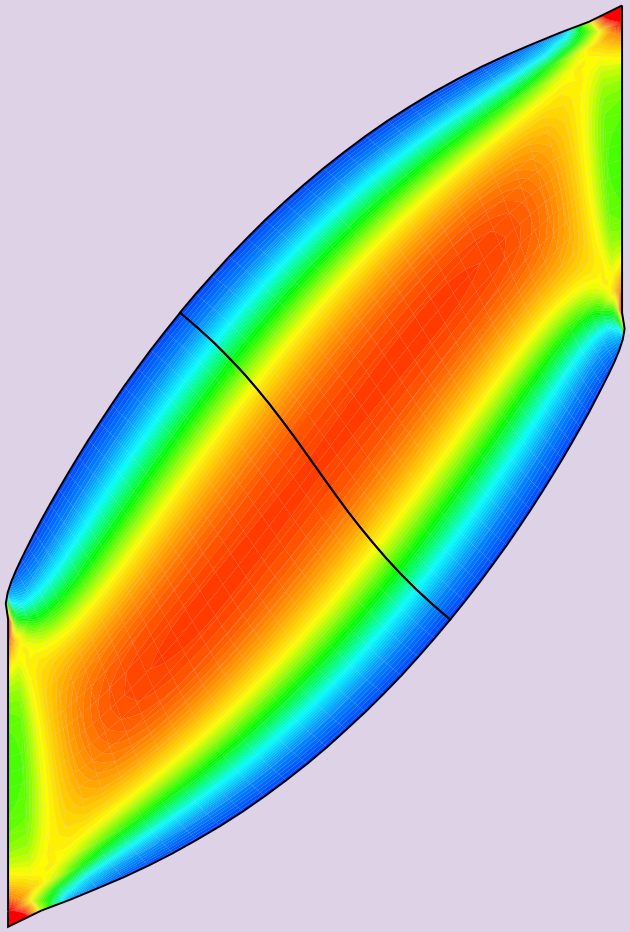


σ_{xy}

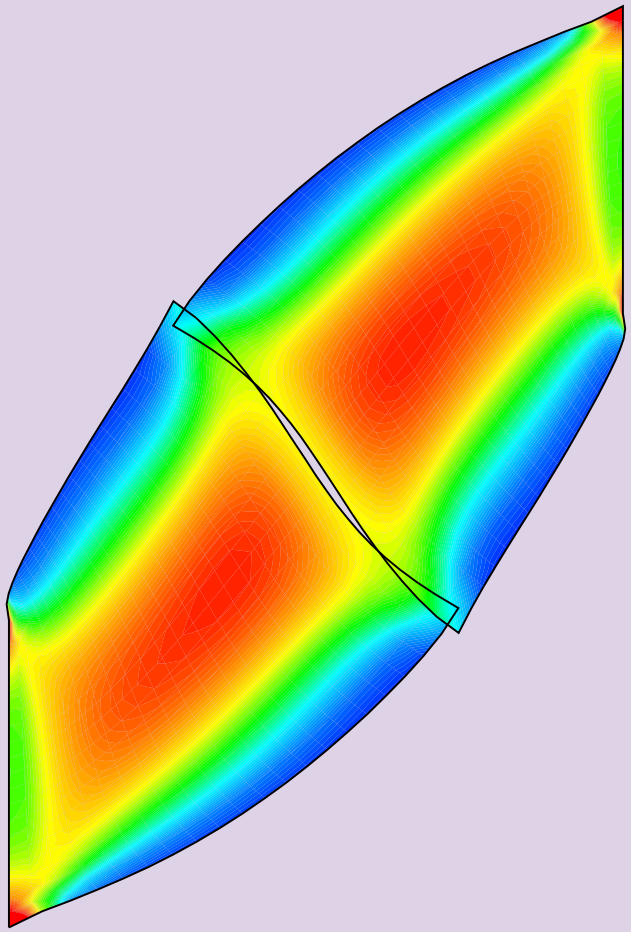


Cisaillement : partie linéaire

référence

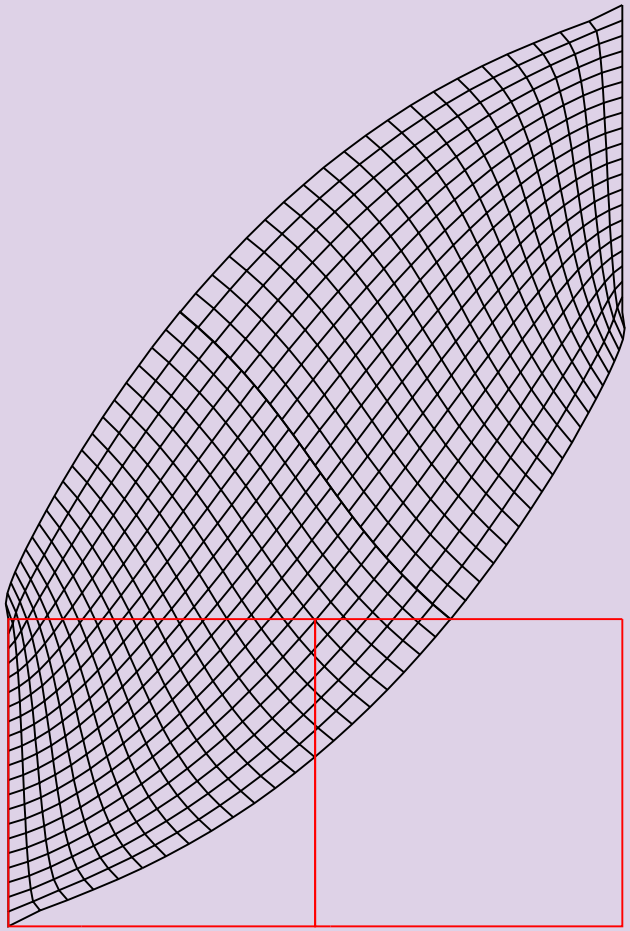


partie linéaire

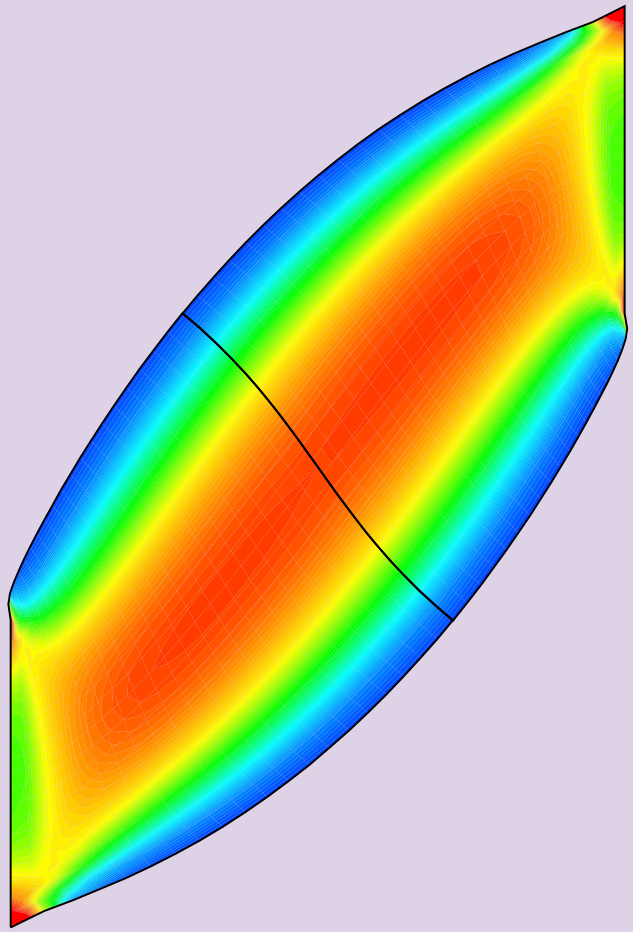


Cisaillement : partie quadratique

déformée

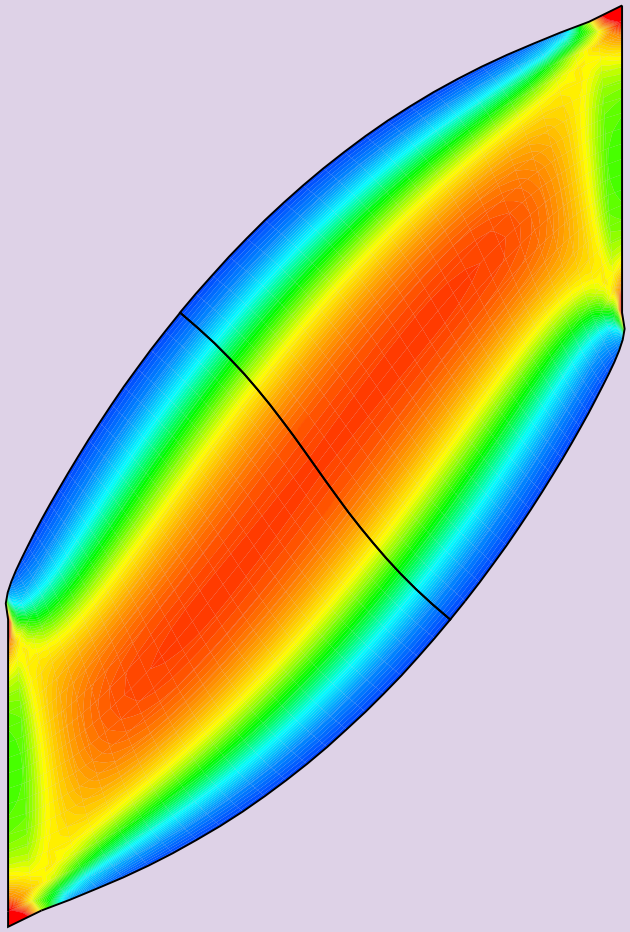


σ_{xy}

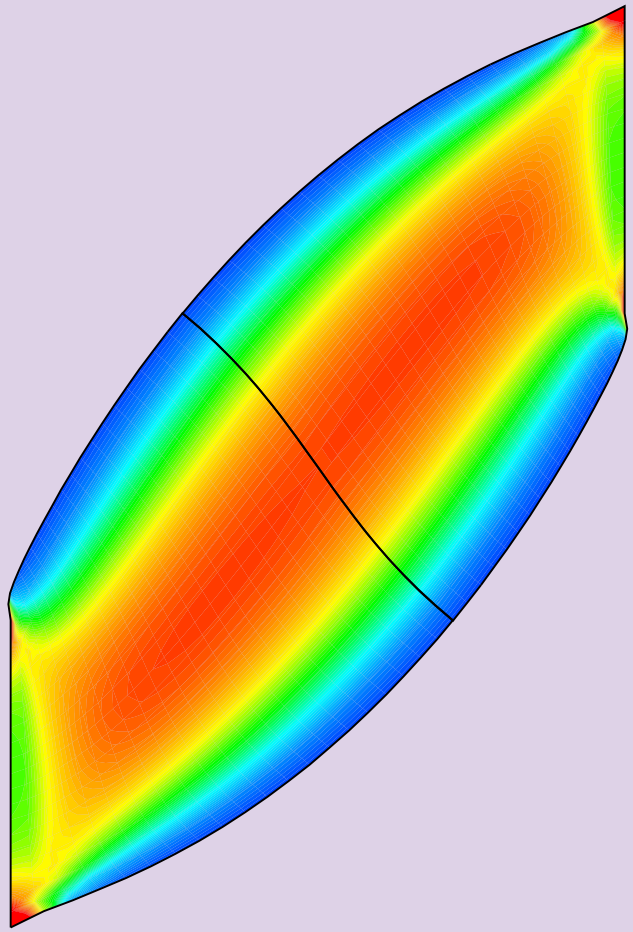


Cisaillement : partie quadratique

référence



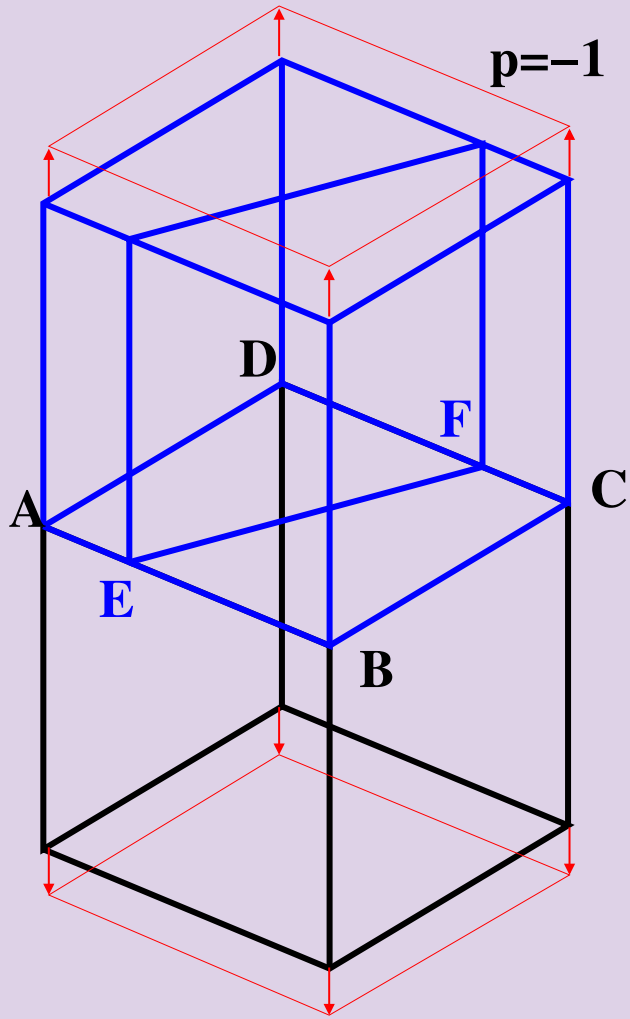
partie quadratique



Traction pure 3D

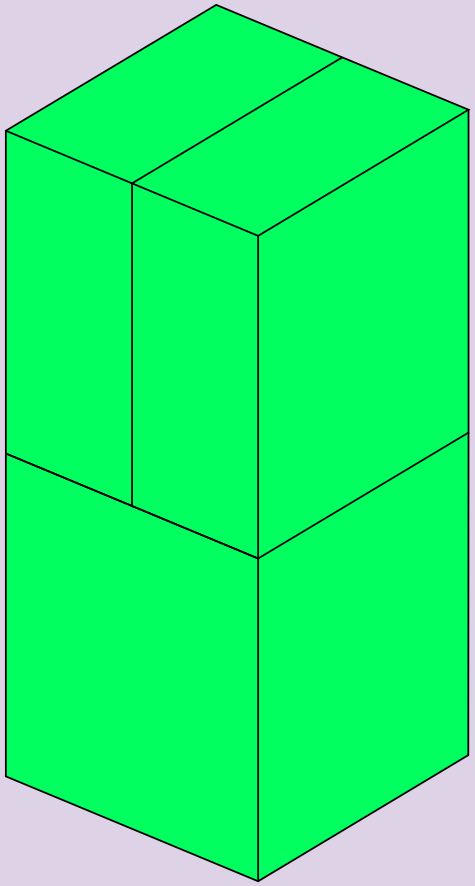
Problème

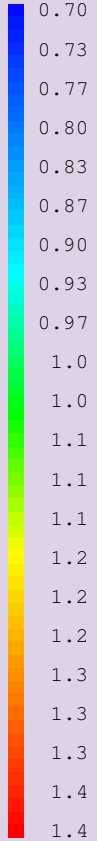
- Traction pure
- 3 éléments quadrangles 8 noeuds
- Relations entre ddl :
  - $u_E = \alpha u_B + (1-\alpha) u_A$
  - $u_F = (1-\alpha) u_C + \alpha u_D$



Traction pure 3D

Constrainte σ_{zz}

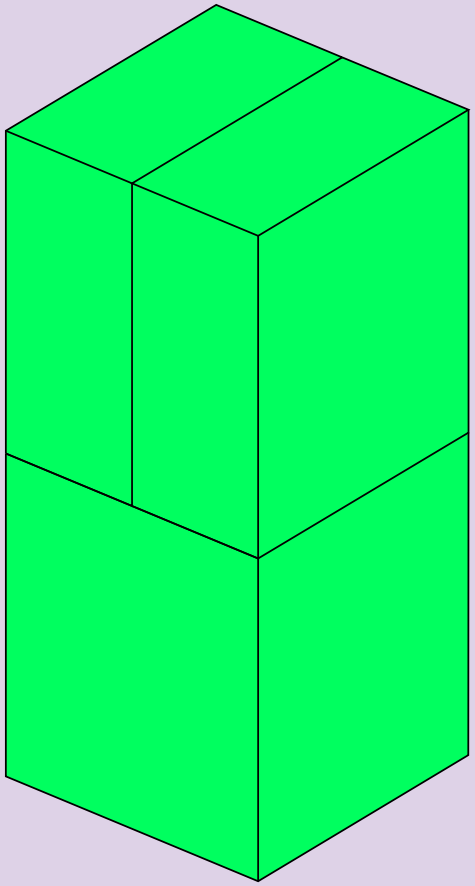




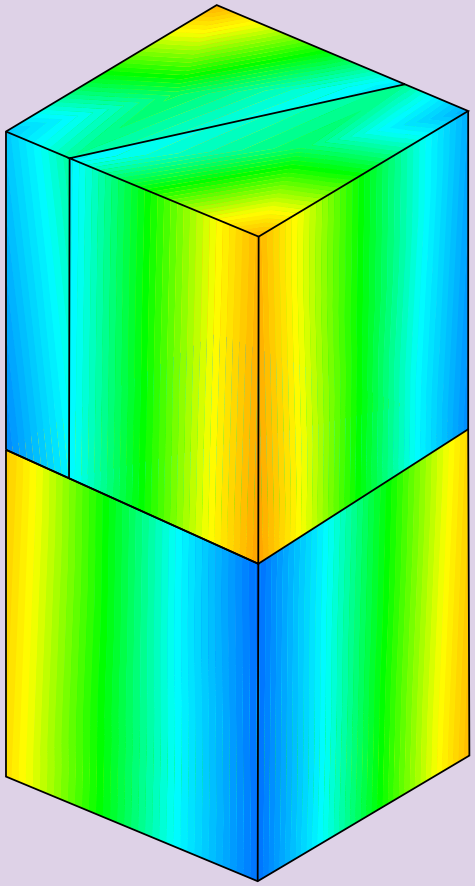
$\alpha = 0.5$

Traction pure 3D

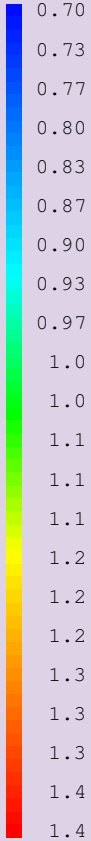
Constrainte σ_{zz}



$\alpha = 0.5$

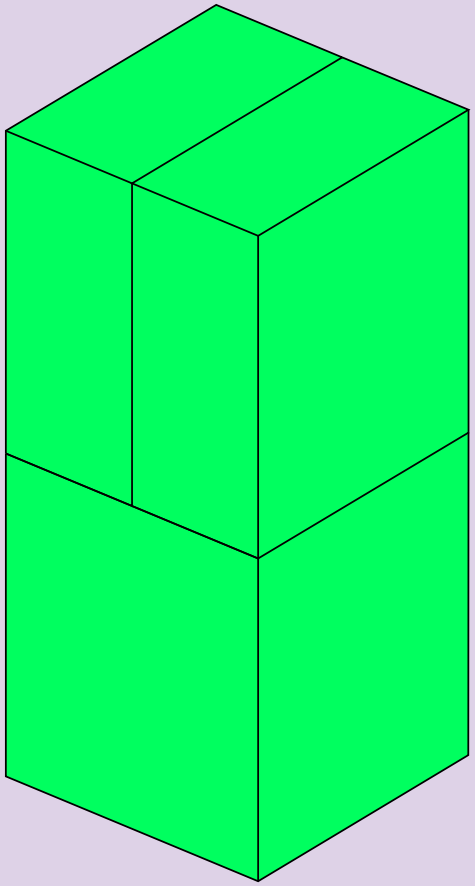


$\alpha = 0.25$

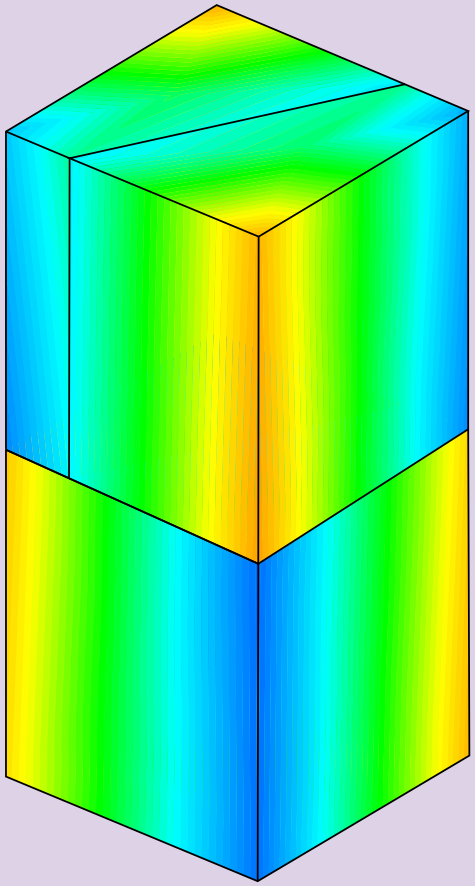


Traction pure 3D

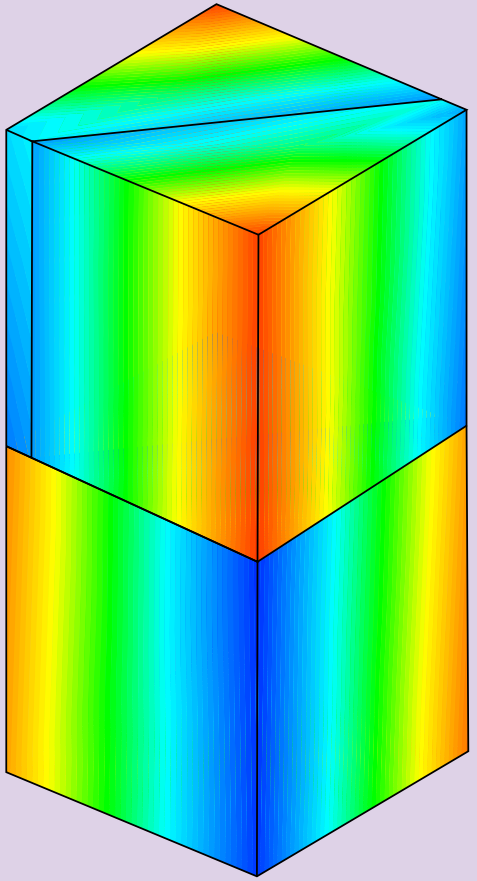
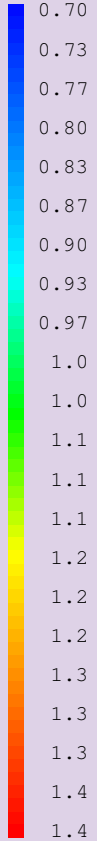
Constrainte σ_{zz}



$\alpha = 0.5$



$\alpha = 0.25$



$\alpha = 0.1$