

BENCH OF ANISOTROPIC PROBLEMS

INSERT TITLE OF THE ARTICLE

LOGO1

LOGO2

INSERT authors names
INSERT address of the authors

Description of the scheme

INSERT here the description of the scheme

Results for Test 1.1

$u_{min}=0.0, u_{max}=1.0.$

- Triangular mesh **mesh1** \rightsquigarrow **ocvl2=??, ocvgradl2=??.**

i	nunkw	nnmat	sumflux	erl2	ergrad	ratio2	ratio2grad
1							
2							
3							
4							
5							
6							
7							

i	erfs0	erfs1	erfy0	erfy1	erflm	umin	umax
1							
2							
3							
4							
5							
6							
7							

- Distorted quadrangular mesh **mesh4_j_i**

grid	nunkw	nnmat	sumflux	erl2	ergrad
C					
F					

grid	erfs0	erfs1	erfy0	erfy1	erflm	umin	umax
C							
F							

- Comments

Results for Test 1.2

$u_{min}=0.0, u_{max}=1+\sin(1).$

- Triangular mesh **mesh1** \rightsquigarrow **ocvl2=??, ocvgradl2=??.**

i	nunkw	nnmat	sumflux	erl2	ergrad	ratio2	ratio2grad
1							
2							
3							
4							
5							
6							
7							

i	erfs0	erfs1	erfy0	erfy1	erflm	umin	umax
1							
2							
3							
4							
5							
6							
7							

- Locally refined mesh **mesh3** \rightsquigarrow **ocvl2=??, ocvgradl2=??.**

i	nunkw	nnmat	sumflux	erl2	ergrad	ratio2	ratio2grad
1							
2							
3							
4							
5							

i	erfs0	erfs1	erfy0	erfy1	erflm	umin	umax
1							
2							
3							
4							
5							

- Comments

Results for Test 2 Numerical locking

Triangular mesh **mesh1**. $u_{min}=-1, u_{max}=1.$

- $\delta = 10^5 \rightsquigarrow$ **ocvl2=??, ocvgradl2=??.**

i	nunkw	nnmat	sumflux	erl2	ergrad	ratio2	ratio2grad
1							
2							
3							
4							

i	erfs0	erfs1	erfy0	erfy1	erflm	umin	umax
1							
2							
3							
4							

- $\delta = 10^6 \rightsquigarrow$ **ocvl2=??, ocvgradl2=??.**

i	nunkw	nnmat	sumflux	erl2	ergrad	ratio2	ratio2grad
1							
2							
3							
4							

i	erfs0	erfs1	erfy0	erfy1	erflm	umin	umax
1							
2							
3							
4							

- Comments

Results for Test 3 : Oblique flow

- Uniform rectangular mesh **mesh2**. $u_{min}=0.0, u_{max}=1.0.$

i	nunkw	nnmat	sumflux	umin	umax
1					
2					
3					
4					
5					
ref					

i	flux0	flux1	flux0	flux1	ener1	ener2	eren
1							
2							
3							
4							
5							
ref							

- Solution on **mesh2.i** for $i=2$ (left), $i=3$ (center), $i=4$ (right)

INSERT Figure oblique flow

- Comments

Results for Test 4 : Vertical fault

- Non conforming rectangular mesh **mesh5**. $u_{min}=0.0, u_{max}=1.0.$

i	nunkw	nnmat	sumflux	umin	umax
1					
reg					
ref					

i	flux0	flux1	flux0	flux1	ener1	ener2	eren
1							
reg							
ref							

- Solution for the vertical fault on the meshes: (Left)**mesh5** (center) **mesh5_reg**. (Right) **mesh5_ref**.

INSERT Figure vertical fault

- Comments

Results for Test 5 : Heterogeneous rotating anisotropy

- Non conforming rectangular mesh **mesh5**. $u_{min}=0.0, u_{max}=1.0.$
 \rightsquigarrow **ocvl2=??, ocvgradl2=??.**

i	nunkw	nnmat	sumflux	erl2	ergrad	ratio2	ratio2grad
1							
2							
3							
4							
5							

i	erfs0	erfs1	erfy0	erfy1	erflm	umin	umax
1							
2							
3							
4							
5							

- Comments

Results for Test 6 and Test 7

- **Test 6** Oblique drain, $\min = -1.2, \max = 0$, coarse (C) and fine (F) oblique meshes, **mesh6** and **mesh7**

grid	nunkw	nnmat	sumflux	erl2	ergrad
C					
F					

grid	erfs0	erfs1	erfy0	erfy1	erflm	umin	umax
C							
F							

- **Test 7** Oblique barrier, $\min = -5.575, \max = 0.575$, coarse oblique mesh **mesh6**

nunkw	nnmat	sumflux	erl2	ergrad

erfs0	erfs1	erfy0	erfy1	erflm	umin	umax

- Comments

Results for Test 8 and Test 9

- **Test 8** Perturbed parallelograms mesh **mesh8**, $u_{min}=0.0, u_{max}=1.0.$

nunkw	nnmat	sumflux	umin	umax

flux0	flux1	flux0	flux1

- **Test 9** Anisotropy with wells. Square uniform grid **mesh9**. $u_{min}=0.0, u_{max}=1.0,$

nunkw	nnmat	sumflux	umin	umax

- Solutions of Test 8 (left), Test 9 (right)

INSERT graph of solution of test 8 and test 9

- Comments