
SDLX201 - Test of not-regression: clean modes

Summary:

It is about a test of not-regression to validate:

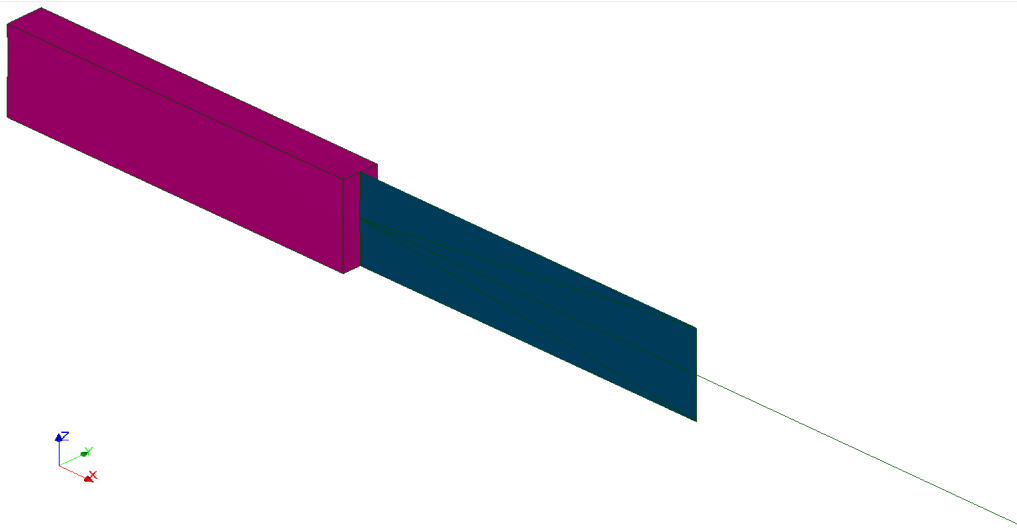
- Various modal solveurs in GEP and real symmetrical QEP;
- Their interworking with the direct linear solveurs;
- Certain modal orders the pre one and postprocessing (INFO_MODE, NORM_MODE,...).

1 Problem of reference

1.1 Geometry

It is about an assembly:

- of a parallelepiped length $10.m$, of width $3.m$ and of depth $1.m$,
- of a rectangular plate length $10.m$, of width $3.m$ and thickness $1.m$,
- of a beam length $10.m$ and of rectangular section $3.m \times 1.m$.



1.2 Material properties

- $E = 2.0 E5 N/m^2$
- $\nu = 0.3$
- $\rho = 8000. Kg/m^3$
- $\alpha = 0.$

1.3 Boundary conditions

Imposed displacements are:

- on the group 'GRNO1' $DX = DY = DZ = 0$
- on the nodes N10, N11, N26, N23 $DZ = 0$

2 Solution

2.1 Sizes and results of reference

The reference variables used are the number of modes by wavebands, the Eigen frequencies and the modal deformations.

3 Modeling A

3.1 Characteristics of modeling

Modeling 3D, DKT and POU_D_E:

Many nodes 28
Many meshes 7

That is to say:

SEG2 2
TRIA3 4
HEXA20 1

3.2 Pre and modal postprocessings

A set of tests is carried out with the operator `NORM_MODE` according to several criteria.

3.3 Configurations of solveurs tested

Problem GEP:

- LDLT for `MODE_ITER_SIMULT`
 - By selecting a frequential band;
 - By using the standard option `'BAND'` ;
 - By using the standard option `'PLUS_PETITE'` ;
 - By using the standard option `'CENTER'` .
- LDLT for `MODE_ITER_INV`
 - By selecting a frequential band.
- `MULT_FRONT` for `MODE_ITER_SIMULT`
 - By selecting a frequential band;
 - By using the standard option `'PLUS_PETITE'` ;
 - By using the standard option `'CENTER'` .
- `MULT_FRONT` for `MODE_ITER_INV`
 - By selecting a frequential band.
- MUMPS for `MODE_ITER_SIMULT`
 - By selecting a frequential band;
 - By using the standard option `'PLUS_PETITE'` ;
 - By using the standard option `'CENTER'` .
- `MULT_FRONT` for `MODE_ITER_INV`
 - By selecting a frequential band.

Problem QEP:

- LDLT for `MODE_ITER_SIMULT`
 - By using the standard option `'CENTER'` ;
 - By using the standard option `'WITHOUT'` .
- LDLT for `MODE_ITER_INV`
 - By selecting a frequential band;
 - By using the standard option `'NEAR'` .
- `MULT_FRONT` for `MODE_ITER_SIMULT`
 - By using the standard option `'CENTER'` ;
 - By using the standard option `'WITHOUT'` .
- `MULT_FRONT` for `MODE_ITER_INV`
 - By using the standard option `'NEAR'` .
- MUMPS for `MODE_ITER_SIMULT`
 - By using the standard option `'CENTER'` ;
 - By using the standard option `'WITHOUT'` .
- `MULT_FRONT` for `MODE_ITER_INV`
 - By using the standard option `'NEAR'` .

Code_Aster

Version
default

Titre : *SDLX201 - Test de non-régression : modes propres*
Responsable : *BOITEAU Olivier*

Date : 27/02/2015 Page : 5/7
Clé : V2.05.201 Révision :
6e61e1b5e0fe

4 Modeling B

4.1 Characteristics of modeling

Modeling B is identical to the modeling A but launched in parallel.

5 Summary of the results

This CAS-test shows the good performance of the modal solveurs in the various studied cases.