

ZZZZ271 - Validation of PROJ_CHAMP in 2D and 3D for fields at the points of Gauss

Summary:

This test validates the projection of internal variable and stress fields using the order PROJ_CHAMP ('ECLA_PG') for a grid 2D and a grid 3D .

1 Principle of the test

Two fields are studied.

First field

The first studied field is a square $[-1,1] \times [-1,1]$

It is with a grid in two different ways:

MA1 : The square into 76 is cut out TRIA6

MA2 : The square into 25 is cut out QUAD4

On the grid MA1, one defines the first component of the stress field and the first component of the field of internal variables, on each point of Gauss, by the formula $1+x+y$ where x and y the coordinates of the point of Gauss represent.

One projects then these fields on the grid MA2.

One tests the value obtained by projection on two points of unspecified Gauss.

Second field

The second studied field is a cube $[0,1] \times [0,1] \times [0,1]$

It is with a grid in two different ways:

MA3 : The cube into 38 is cut out TETRA4

MA4 : The square into 64 is cut out HEXA8

On the grid MA3, one defines the first component of the stress field and the first component of the field of internal variables, on each point of Gauss, by the formula $1+x$ where x represent the X-coordinate of the point of Gauss.

One projects then these fields on the grid MA4.

One tests the value obtained by projection on an unspecified point of Gauss.

2 Modeling A

2.1 Got results

	Value of reference	Error (%)
Grid 2 Second point of Gauss of mesh 69	2.830 940	2
Grid 2 Fourth point of Gauss of mesh 77	1.169 060	1,8
Grid 4 Eighth point of Gauss of mesh 272	1.197 169	6,3

Table 2.1-1