

ZZZZ261 - Validation of PROJ_CHAMP in 2D for fields with the nodes

Summary:

This test validates the various methods of projection of the order PROJ_CHAMP ('ELEM', 'NUAG_DEG_0/1') for a grid 2D.

1 Principle of the test

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

It is with a grid in quadrangles in two different ways:

MA1 : One cuts out the square in 9×9 QUAD4

MA2 : One cuts out the square in 12×12 QUAD4

On the grid MA1, one creates a thermal evolution by assigning to each node the temperature obtained by the formula: $T = t * (1 + 2(x - 0,5)^2 + 3(y - 0,25)^2)$ where t, x, y the value of the moment and the 2 coordinates of the nodes represent.

One projects then in several ways the field of temperature (at the moment $t = 10$) on the grid MA2.

One tests the value obtained by projection on the point of coordinates $(0,5; 0,5)$.

One must obtain the value $T = 11,875$

2 Modeling A

2.1 Got results

	Value of reference	Error (%)
Method 'ELEM'keyword RESULT	11.875	1,3
Method 'ELEM'keyword CHAM_NO	11.875	1,3
Method 'NUAG_DEG_0'keyword RESULT	11.875	1,3
Method 'NUAG_DEG_0'keyword CHAM_NO	11.875	1,3
Method 'NUAG_DEG_1'keyword RESULT	11.875	1,3
Method 'NUAG_DEG_1'keyword CHAM_NO	11.875	1,3