

## ZZZZ261 - Validation of PROJ\_CHAMP in 2D for fields at nodes

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### Summarized:

This test validates of the command the various methods of projection PROJ\_CHAMP ("ELEM", "NUAG\_DEG\_0/1") for a 2D mesh.

## 1 Principle of the test

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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  $9 \times 9$  QUAD4

MA2 : One cuts out the square in  $12 \times 12$  QUAD4

On mesh 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 time and the 2 coordinates of the nodes represent.

One projects then in several ways the field of temperature (at time  $t = 10$ ) on mesh 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 Modelization A

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### 2.1 got Results

	Value of reference	Error (%)
Method "ELEM" key word RESULTAT	11,875	1.3
Method "ELEM" key word CHAM_NO	11,875	1.3
Method "NUAG_DEG_0" key word RESULTAT	11,875	1.3
Method "NUAG_DEG_0" key word CHAM_NO	11,875	1.3
Method "NUAG_DEG_1" key word RESULTAT	11,875	1.3
Method "NUAG_DEG_1" key word CHAM_NO	11,875	1.3