Operator **DEFI_FIELD_REDUCED**

The goal of the operator is to enrich an existing grid by groups (of meshes or nodes) which define a under-field called reduced field of integration (RID).

The operator rests on one or more sd result of the type `mode_empi` to determine nodes specific, called points of interpolation, by applying the method of discrete empirical interpolation (DEIM). The reduced field of integration is the whole of the meshes positioned in the vicinity of these points of interpolation.

The operator enriches the sd grid by creating two groups:
- UN groups meshes corresponding to the reduced field;
- a group of nodes corresponding to the interface between the reduced field and the rest of the initial field.
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1 Syntax

e-mail = DEFI_FIELD_REduced (
  ♦ reuse = e-mail,
  ♦ GRID = e-mail,
  ♦ BASE_PRIMAL = base1,
  ♦ BASE_DUAL = base2,
  ♦ NOM_DOMAINE = nom_d,
  ♦ NOM_INTERFACE = nom_i,
  ♦ NB_COUCHE_SUPPL =/= 0
    /nb_couche,
  ♦ DOMAINE_INCLUS = _F ( 
    ♦ GROUP_MA = lgma1,
    ♦ GROUP_NO = lgno1,
  ),
  ♦ TITLE = title,
  ♦ INFORMATION = /1,
    /2,
)

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2 Operands

2.1 Operand BASE_PRIMAL and BASE_DUAL

- **BASE_PRIMAL** = base1,  
- **BASE_DUAL** = base2,

Name of structure data result of type mode_empi to analyze to generate points of interpolation.

Both bases base1 and base2 calculated using the operator DEFI_BASE_REDUITE [U4.67.01].

The calculation of the base base1 rest on a field of temperature or a field of displacement.
The calculation of the base base2 rest on a field of flow or a stress field.

2.2 Operand GRID

- **GRID** = e-mail,

The order will enrich a concept already existing grid with the new groups of nodes and meshes defined by DOMAINE_INCLUS, NOM_INTERFACE and NOM_ENCASTRE.
The keyword GRID is thus obligatory.

2.3 Operand NOM_DOMAINE

- **NOM_DOMAINE** = nom_d

It is specified name of the group of meshes corresponding to the RID.

2.4 Operand NOM_INTERFACE

- **NOM_INTERFACE** = nom_i

One specifies the name of the group of nodes contained in the interface between the RID and the rest of the field.

2.5 Operand NB_COUCH_SUPPL

- **NB_COUCH_SUPPL** = nb_couche,

By default, the order builds group RID by selecting the meshes attached to the magic points (application of the dEIM, to see [R5.01.05]). When the keyword is used NB_COUCH_SUPPL, one can increase the RID while taking nb_couche additional elements around the initial RID. By default, nb_couche = 0.

2.6 Operand DOMAINE_INCLUS

- **DOMAINE_INCLUS** = F ( 
  - **GROUP_MA** = lgma1, 
  - **GROUP_NO** = lgno1, 
)

The keyword optional factor makes it possible to put part of the grid in the RID even if the L" algorithm of research of the magic points by dEIM (see [R5.01.05]) does not allow it. It is very useful in particular to force the integration of part of the limiting conditions in the RID. One can either add nodes, or to add meshes.