Operator PROD_MATR_CHAM

1 Goal

To carry out the product of a matrix by a vector.

The matrix is a structure of data of the type matr_asse: it is with actual values or complex, symmetrical or not symmetrical. The vector is a structure of data of the type cham_no. It is with actual values or complex. One imposes who matrix and vector are both to actual values or both with complex values (if not to use the orders before COMB_MATR_ASSE [U4.72.01] or CREA_CHAMP [U4.72.04]) and that they divide same classification (see order NUME_DDL [U4.61.11]).

Product a concept of the type cham_no.
2 Syntax

uass [cham_no] = PROD_MATR_CHAM(

♦ MATR_ASSE = m, / [matr_asse_DEPL_R]
    / [matr_asse_TEMP_R]
    / [matr_asse_DEPL_C]
    / [matr_asse_PRES_C]

♦ CHAM_NO = U, [cham_no]

♦ TITLE = titr, [l_Kn]

)

Size associated with the cham_no result with the order (uass) is the same one as that of U.
3 Operands

3.1 Keyword MATR_ASSE

♦ MATR_ASSE = m

Name of the matrix (concept \texttt{matr\_asse\_*}) to multiply.

3.2 Keyword CHAM_NO

♦ CHAM_NO = U

Name of the vector (concept \texttt{cham\_no}) to multiply.

3.3 Keyword TITLE

◊ TITLE = titr

Title which one wants to give to the result

4 Checks

• Checking that the matrix and the vector to be multiplied are both to actual values or both with complex values.

• Checking of coherence: operands of the type \texttt{matr\_asse\_*} and of type \texttt{cham\_no} must share same classification.

5 Example of use

Product stamps vector:

\[
u_{\text{mv}_1} = \text{PROD_MATR_CHAM} ( \text{MATR\_ASSE} = \text{mat\_1}, \text{CHAM\_NO} = \text{u\_1}, )
\]

For example, one can use this order to create a vector second member resulting from the product of the matrix of mass and a vector acceleration obtained by the order \texttt{DYNA\_LINE\_TRAN}. This vector second member can be used as loading for a static calculation.