

ZZZZ380 - Addition of ddls fictitious for the solveurs multigrille.

Summary:

This test shows the interest to add fictitious ddls when one uses the solveurs multigrille of PETSc and that there exist conditions dualized kinematics requiring the use of the keyword `ELEM_LAGR=' OUI '`.

1 Principle of the test:

One solves a rather simple mechanical problem comprising boundary conditions of type `LIAISON_MAIL`.

The dualisation of these boundary conditions prohibits the use of the solveurs multigrille of PETSc (because of dds of Lagrange).

The functionality thus should be used `ELIM_LAGR=' OUI '`.

But the code, to eliminate each ddl from Lagrange is obliged to eliminate a physical ddl.

At the end of the day, certain nodes thus have less dds than the others, which prevents theoretically to use the solveurs multigrille effectively.

In this case, the code adds fictitious dds so that all the nodes of the model have the same number of dds and that one can use the solveurs efficacement '`GAMG`', '`BOOMER`' and '`MI`'.

This test shows that this strategy is interesting: the iteration count to converge is very clearly decreased by adding fictitious dds:

solvor		BOOMER	MI	GAMG
Without	dds	375	38	478
fictitious				
With	dds	50	24	41
fictitious				

This documentation is voluntarily brief.