ID de Contribution: **5** Type: **Non spécifié**

A low dispersive Trefftz DG method based on a local BEM for the solution of the Helmholtz equation

vendredi 5 février 2016 11:40 (35 minutes)

We first briefly present the dispersion phenomenon and show how it damages the numerical solution of wave problems over large distances of propagation. We then introduce a Trefftz Discontinuous Galerkin (TDG) symmetric formulation for the Helmholtz equation with piecewise constant coefficients. Recall that Trefftz methods are discretization processes based on the use of exact interior either local or global solutions. The Trefftz method considered in this work is based on using locally a Boundary Element Method (BEM), thus avoiding the restriction on the type of the local waves used in the usual TDG methods. We show then that accurate local approximations of the Dirichlet-to-Neumann map have a direct impact on the reduction of the dispersion error. We then present some numerical tests bringing out that the obtained procedure can completely rub out the dispersion error contrary to the best Interior Penalty DG (IPDG) methods.

Orateur: BENDALI, Abderrahmane (INSA Toulouse)