Coupling BEM and LDG methods

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Locally discontinuous Galerkin (LDG) methods (as well as other members of the wide family of DG schemes) have been applied to elliptic equations because of their very local nature and their ability to cope with non–matching triangulations.
In this work we show some first results on the possibility of coupling LDG schemes with Boundary Integral Methods for a model elliptic problem on an unbounded domain. The procedure uses a variant of the *two integral equation coupling*, by duplicating one of the Cauchy data in the interface. This additional unknown in respect to traditional coupling serves as a Lagrange multiplier and allows to relate interior and boundary unknowns, which live in completely independent grids.
We will give some hints on the analysis of the method and show some numerical results.

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