

PROGRESS REPORT ON THE DPG METHOD

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By the time of the Congress, the Discontinuous Petrov Galerkin Method with Optimal Test Functions (the full name of the DPG method) will be a decade old and this is perhaps a good time to review the progress and current state of research on the DPG methodology not only in my own group but in the whole DPG community that has developed so far.

Consequently, the lecture will provide a high level overview of the following topics:

1. DPG as a Minimum Residual Method.
2. DPG as a Petrov-Galerkin scheme with optimal test functions.
3. DPG as a mixed method.
4. Breaking (or not) test spaces.
5. Choice of test norm.
6. Goal oriented adaptivity and DPGstar method.
7. Superconvergence.

Most of the presentation will address only model linear problems and Hilbert space DPG theory but I will comment on applications to nonlinear problems and Banach space setting.