

Oberwolfach Seminar:

Discontinuous Petrov Galerkin (DPG) Method with Optimal Test Functions

Date: June 4 - June 10, 2017 (ID: 1723b)

Organizers:

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Program:

The seminar will include a number of introductory lectures covering the basics plus a number of presentations on current research topics. The preliminary lectures are:

- Petrov-Galerkin method with optimal test functions vs. minimum residual method vs. mixed formulation.
- Various variational formulations (Closed Range Theorem at work).
- Formulations with broken test spaces.
- Robust DPG methods.
- New developments.

Introductory Reading:

1. L. Demkowicz and J. Gopalakrishnan. *Encyclopedia of Computational Mechanics, Second Edition*, chapter Discontinuous Petrov-Galerkin (DPG) Method. Wiley, 2016. Eds. Erwin Stein, René de Borst, Thomas J. R. Hughes, see also ICES Report 2015/20.
2. C. Carstensen, L. Demkowicz, and J. Gopalakrishnan. Breaking spaces and forms for the DPG method and applications including Maxwell equations. *Comput. Math. Appl.*, 72(3):494–522, 2016.
3. L. Demkowicz. Various variational formulations and Closed Range Theorem. Technical report, ICES, January 15–03.
4. C. Carstensen, L. Demkowicz, and J. Gopalakrishnan. A posteriori error control for DPG methods. *SIAM J. Numer. Anal.*, 52(3):1335–1353, 2014.
5. L. Demkowicz and N. Heuer. Robust DPG method for convection-dominated diffusion problems. *SIAM J. Num. Anal.*, 51:2514–2537, 2013. see also ICES Report 2011/13.

Deadline for applications:

2 April 2017