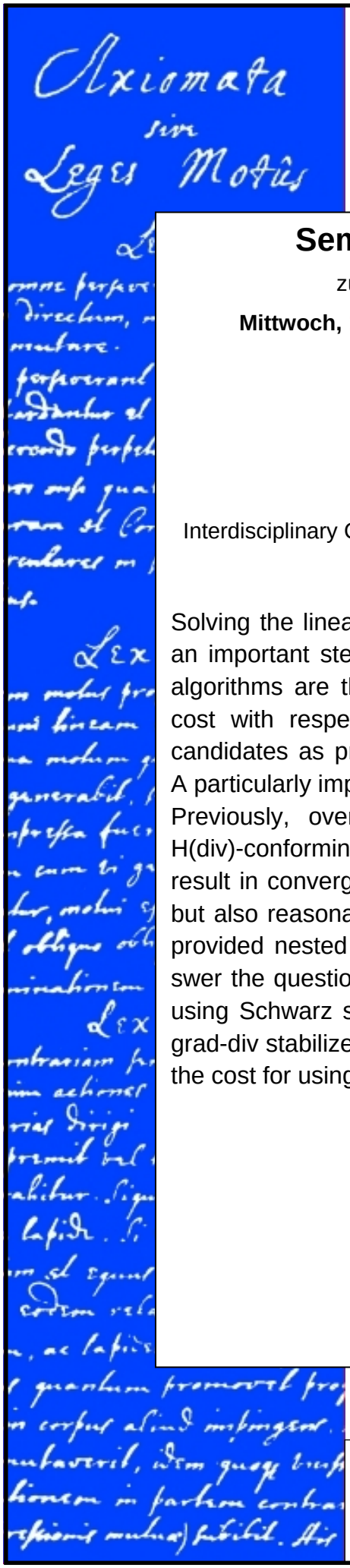

Seminar über Fragen der Mechanik

zu folgendem Vortrag wird herzlich eingeladen

Mittwoch, 16.05.2018, 09:00 Uhr, Egerlandstr. 5, Raum 0.044

Ideas on Schwarz Smoothers in Efficient Multigrid Solvers

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Solving the linear system arising in finite element discretizations fast, is an important step in the development of efficient FEM codes. Multigrid algorithms are the only kind of methods that provably scale linearly in cost with respect to the problem size. Hence, they are interesting candidates as preconditioners or solvers for the arising linear systems. A particularly important role play the smoothers applied on each level.
Previously, overlapping Schwarz smoothers in combination with a H(div)-conforming discontinuous Galerkin approximation were proven to result in convergence rates that are not only independent of mesh size, but also reasonably small. A key assumption was that the discretization provided nested divergence free subspaces. In this talk, we aim to answer the question whether this assumption can be relaxed to also allow using Schwarz smoothers in combination with conforming and possibly grad-div stabilized discretizations. Furthermore, we discuss ideas on how the cost for using Schwarz smoothers can be considerably reduced.

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