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**nvAMG: Multi-level linear solvers with fine-grained
parallelism**

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NVIDIAs nvAMG library is a sophisticated suite of multi-level linear solvers. It allows arbitrary nesting of solvers, use of mixed precision and matrices with both scalar and block coefficients.

I will present an overview of our approach to fine-grained parallelization of all phases of algebraic multigrid, including hierarchy construction, graph coloring, ILU factorization and solve. I will also describe how nvAMG provides GPU acceleration to the coupled incompressible solver in ANSYS Fluent 14.5.

Recent work focuses on the integration of MPI support and the interaction of fine-grained and coarse-grained parallelism.