数学与系统科学研究院

计算数学所学术报告

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报告题目：

Accelerating Preconditioned Krylov Subspace Solvers on GPU

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计算数学所报告厅

Abstract：

GPU, used to be a graphic processing device only, is very powerful in floating calculation. For example, the latest NVIDIA Tesla C2050/C2070 can deliver over 515GFLOPS (double precision), which is much faster than the latest CPU. It becomes popular in scientific computing area. In this talk, we will talk about our work on accelerating linear solvers. We develop a new sparse matrix vector multiplication kernel and other BLAS 1/2 operations. Based on these, GMRES, BICGSTAB, ORTHOMIN and other Krylov solvers are developed. These solvers can be sped up to 19 times faster than our CPU solvers. Besides, several preconditioners, such as polynomial preconditioner, approximate inverse preconditioner, ILU(k), ILUT and domain decomposition preconditioner (Restricted Additive Schwarz), are also developed. The speedup of these preconditioners is also up to 19.

欢迎大家参加！