

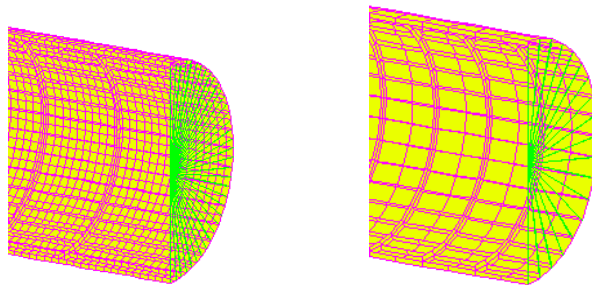
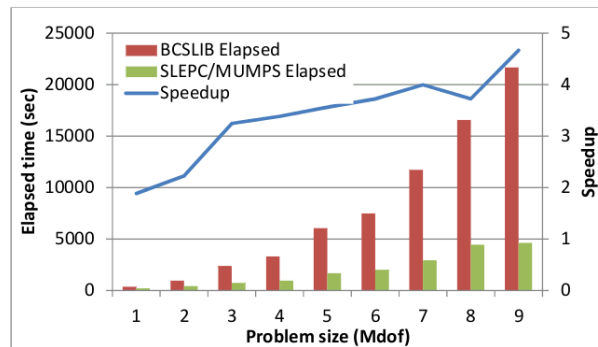
Recent Progress of Parallel SAMCEF with MUMPS

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Abstract

During the last few years an interface with SLEPC¹ solver has been implemented in SAMCEF. With MUMPS solver, this library allows to solve large eigenvalue problems in parallel. In this presentation, after a short summary of parallel capabilities of SAMCEF, performance of SLEPC/MUMPS solver will be shown. The performance analysis has been made with a parametric FE model of a stiffened cylinder that mimics a realistic fuselage. Following pictures shows the comparison of sequential BCSLIB elapsed time with 4 process SLEPC/MUMPS for increasing model size from 1 to 9 Mdof's.



These analyses have been executed on different computer configurations, for several number of MKL threads, for several number of processors and several problem sizes. The final goal is to answer the question "What is the maximum problem size I can run on my computer?" or "What computer do I need to solve my problem size?"

¹V. Hernandez, J. E. Roman and V. Vidal (2005), "SLEPC: A Scalable and Flexible Toolkit for the Solution of Eigenvalue Problems", ACM Trans. Math. Softw. 31(3), 351-362.