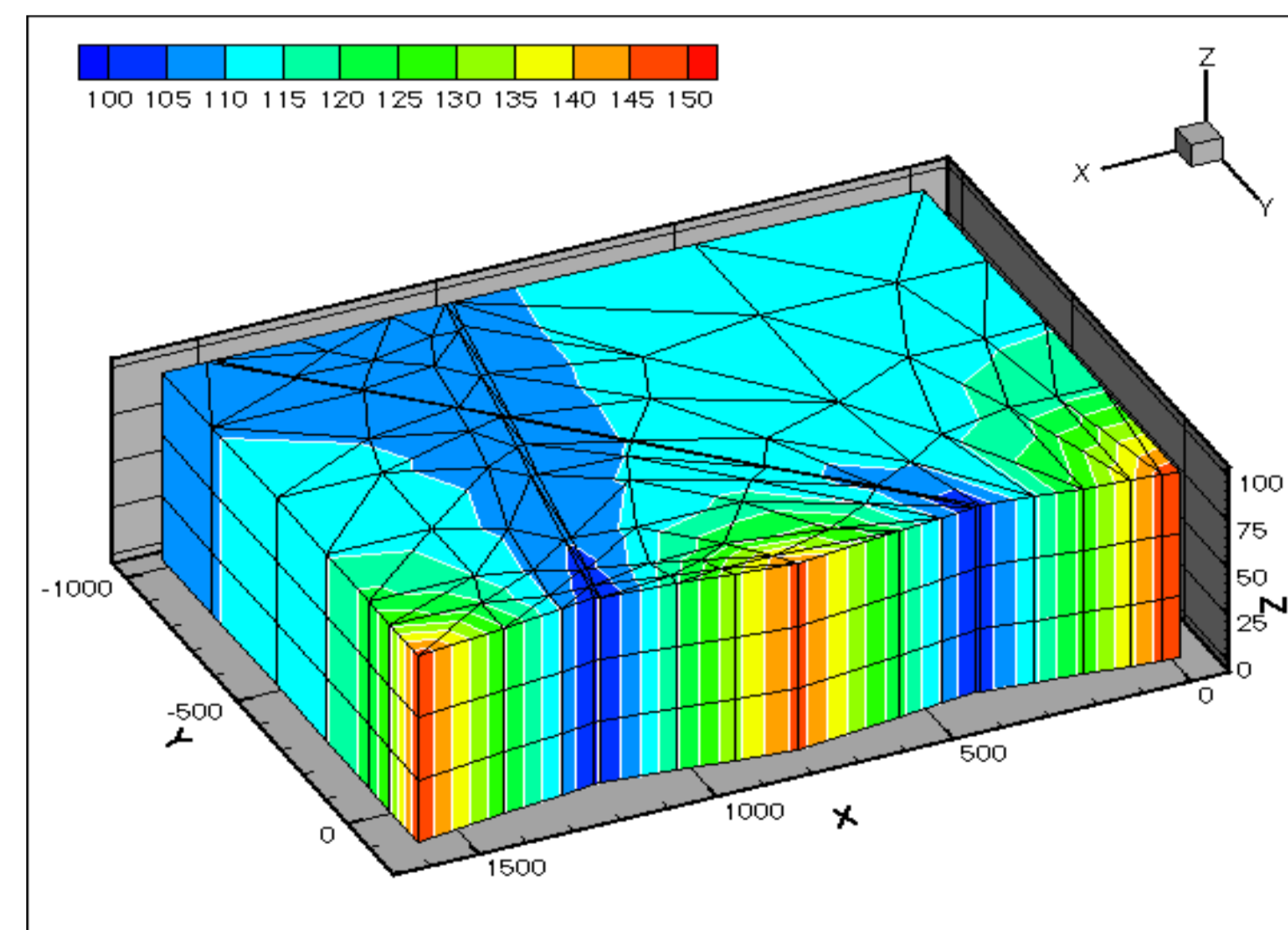
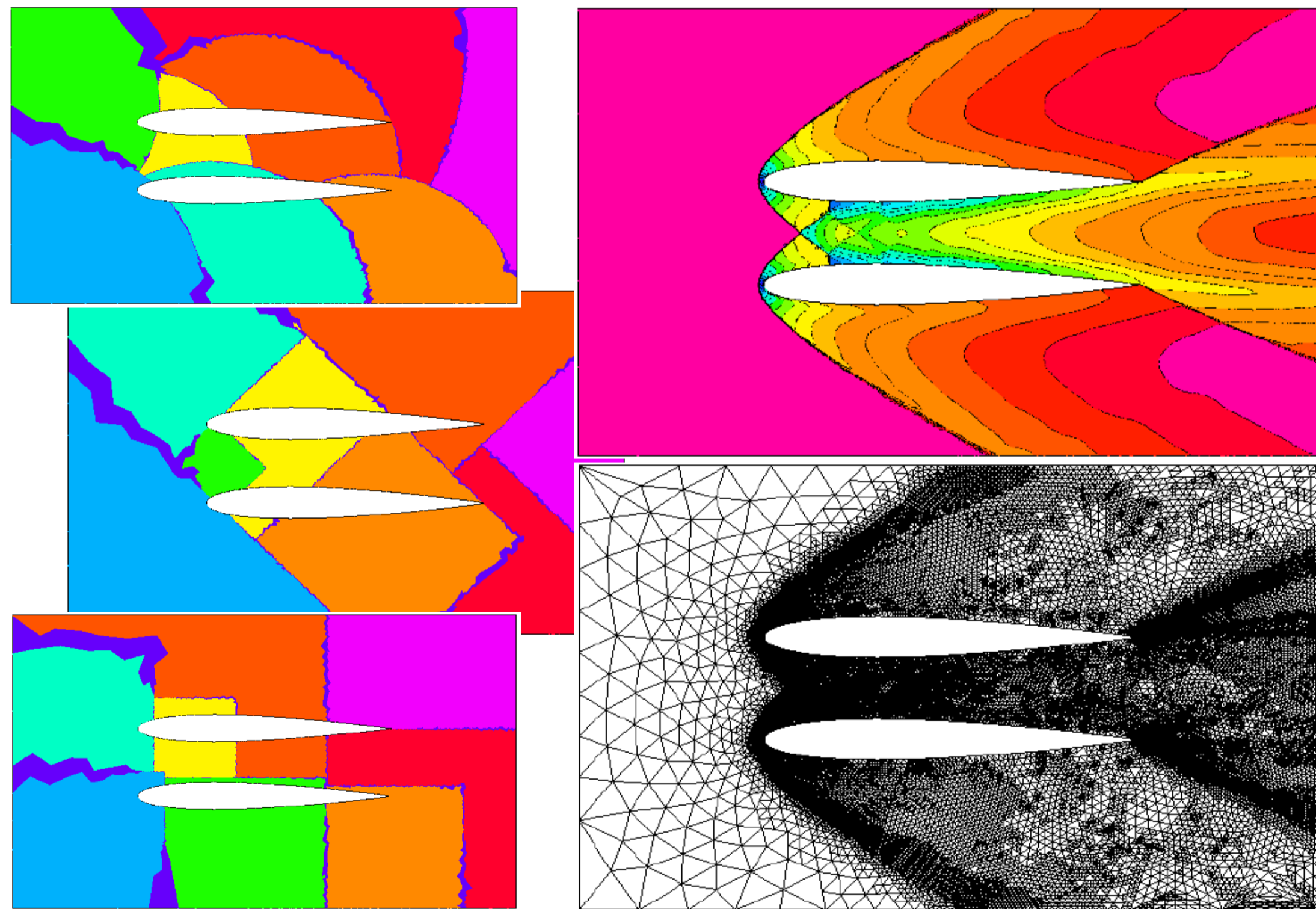


# Parallel Scientific and Engineering Computing

## Computer Graphics and High Performance Computing Group

### Parallel and sequential compressible gas flow simulations by the adaptive finite element method

- K. Banaś: "Convergence to steady-state solutions for stabilized finite element simulations of compressible flows", Computers and Mathematics with Applications, 40, 625–643, (2000).
- K. Banaś and L. Demkowicz, "Entropy controlled adaptive finite element simulations for compressible gas flow", Journal of Computational Physics, 126, 181–201, (1996).
- K. Banaś and J. Płazek, "Dynamic load balancing for the preconditioned GMRES solver in a parallel, adaptive finite element Euler code", in Proceedings of the IIIrd ECCOMAS Computational Fluid Dynamics Conference, 9-13 IX 1996, Paris, France, eds., J.-A. Desideri, et al., pp. 1025–1031, (1996). Wiley.

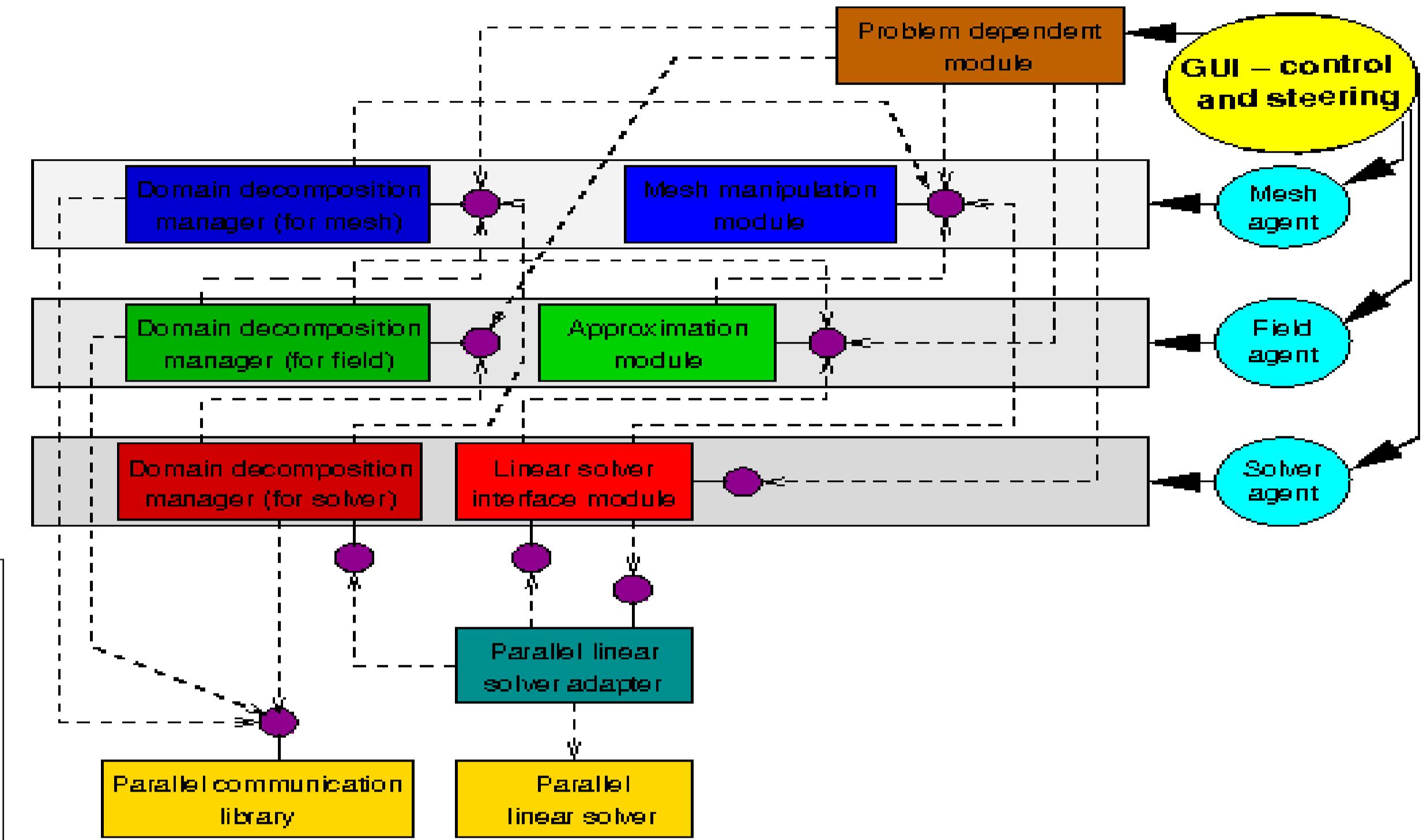
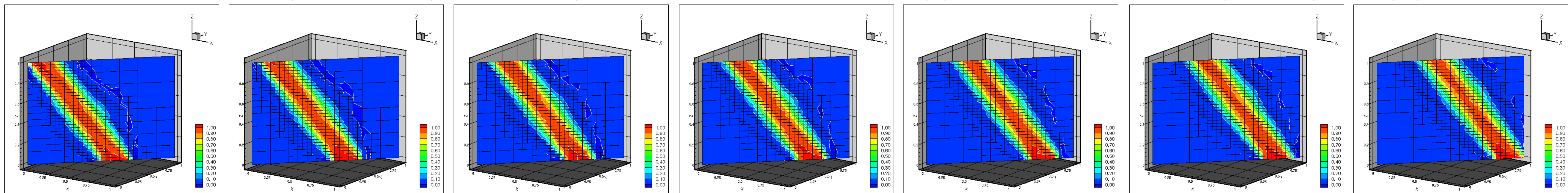


### Subsurface flow simulations using discontinuous Galerkin approximation

- B. Riviere, M.F. Wheeler, K. Banaś: „Discontinuous Galerkin method applied to a single phase flow in porous media”, Computational Geosciences, 4, 337–349, (2000).

### Dynamic adaptation of finite element meshes in simulations of transient processes

- K. Banaś: „A model for parallel adaptive finite element software”, in: Domain Decomposition Methods in Science and Engineering, ed., R. Kornhuber, et al., Vol. 40, Lecture Notes in Computational Science and Engineering, p. 159-166. Springer, (2004).
- K. Banaś: „Parallelization of large scale adaptive finite element computations”, in: Proceedings of Vth International Conference, PPAM, 2003, ed., R. Wyrzykowski, et al., Vol. 3019, Lecture Notes in Computer Science, p. 431-438. Springer, (2004).



### Design of modular architecture for parallel finite element codes

- K. Banaś, „Agent architecture for mesh based simulation systems" in: Computational Science - ICCS 2006, 6th International Conference, Proceedings, Part III, ed., V.N. Alexandrov, et al., Vol. 3993, Lecture Notes in Computer Science, p. 743-750. Springer, (2006).
- K. Banaś, „On a modular architecture for finite element systems. I. Sequential codes", Computing and Visualization in Science, 8, 35-47, (2005).

### Iterative solvers for systems of linear and nonlinear equations

- K. Banaś, M.F. Wheeler: „Preconditioning GMRES for discontinuous Galerkin approximations", Computer Assisted Mechanics and Engineering Sciences, 11, 47-62, (2004).
- K. Banaś: "A Newton-Krylov solver with multiplicative Schwarz preconditioning for finite element compressible flow simulations", Communications in Numerical Methods in Engineering, 18, 269–275, (2002).