













## 5-Day-Course — *Beginners* — 1st day (Monday)

### Message Passing Interface (MPI-1, part 1)

- 8:30 Registration
- 9:00 Introduction [1] (talk) 
- 9:10 Parallel Architectures and Programming Models [2] (talk) 
- 10:10 Coffee
- 10:25 MPI-1 – Introduction to the Message Passing Interface [3+3a] (talk) 
- 10:25 Chap. 1 MPI Overview (talk) 
- 10:45 Chap. 2 MPI Process model (talk+practical) 
- 12:00 Lunch
- 13:00 Chap. 3 Messages and Point-to-Point Communication (talk+practical) 
- 14:15 Coffee
- 14:30 Chap. 4 Non-Blocking Communication (talk+practical) 
- 15:45 Coffee
- 16:00 Chap. 5 Derived Datatypes (talk+practical) 
- 17:00 Parallel debugging [5] (talk)    
- 17:30 End















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## 5-Day-Course — *Beginners* — 2nd day (Tuesday)

### Message Passing Interface (MPI-1, part 2) and OpenMP

- 8:30 Access to the federal high-performance computing-centers [9] (talk)  
- 9:00 Chap. 6 Virtual Topologies [3, continued] (talk+practical) 
- 10:10 Coffee
- 10:25 Chap. 7 Collective Communication (talk+practical) 
- 11:00 Coffee
- 11:15 Chap. 8 Other MPI-1 features (talk) 
- 11:40 Heat conduction program, a parallelization example with MPI [6] (talk)  
- 12:00 Lunch
- 13:00 OpenMP – Overview, execution model, work sharing [7+7a] (talk+practical) 
- 14:30 Coffee
- 14:45 OpenMP – Data environment and combined constructs (talk+practical - HEAT) 
- 16:00 Coffee
- 16:15 OpenMP – Summary and Pitfalls (talk) 
- 16:45 Assure – detection of OpenMP race conditions [8] (talk+practical)  
- 17:30 End


















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## 5-Day-Course — *Beginners* — 3rd day (Wednesday)

### Parallelization Examples, PETSc, and MPI-2

- 8:30 **Parallelization of Explicit and Implicit Solvers** [38a] (talk) 
- 9:45 **Coffee**
- 10:00 **Laplace-Example with MPI and PETSc**  
– **Introduction** [42a] (talk)    
– **Writing a parallel MPI program with a CG solver** [42b] (talk+practical)  
- 12:00 **Lunch**
- 13:00 **PETSc Tutorial** [41] (talk)   
- 14:00 **Coffee**
- 14:15 **Laplace-Example with PETSc** [42c] (talk+practical)  
- 15:30 **MPI-2 overview** [10] (talk) 
- 15:45 **Application Support at HLRS** [18] (talk) 
- 16:05 **Coffee**
- 16:20 **MPI-2 one-sided Communication** [12+12a] (talk+practical) 
- 17:05 **VAMPIR and other tools for performance analysis** [16, 17] (talk+practical)  
- 17:30 **End**



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