

3-Day-Course — Frankfurt — 1st day






Message Passing Interface (part 1)

- 8:30 **Registration**
 - 9:00 **Introduction** [1] (talk)
 - 9:15 **Parallel Architectures and Programming Models** [2] (talk) 
 - 10:15 **Coffee**
 - 10:30 **MPI – Introduction to the Message Passing Interface** [3] (talk)
 - 10:40 **Chap. 1 MPI Overview** (talk)  1-4 5-9 10-14 15-18
 - 11:15 **Chap. 2 MPI Process model** (talk+practical)
 - 12:30 **Lunch**
 - 13:30 **Chap. 3 Messages and Point-to-Point Communication** (talk+practical)
 - 15:00 **Coffee**
 - 15:15 **Chap. 4 Non-Blocking Communication** (talk+practical)
 - 16:30 **Coffee**
 - 16:45 **Chap. 6-(1) Collective Communication** (talk+practical)
 - 17:25 **Chap. 7 Error handling** (talk)
 - 17:30 **End**
- 18:00 Guided City-Tour through Frankfurt (free)**
19:30 Dinner at “Zum Storch am Dom”, Saalgasse 3-5, Frankfurt (self-paying)

[1] Slide 9 (3days)

3-Day-Course — Frankfurt — 2nd day

Message Passing Interface (part 2) and OpenMP







- 8:30 **Chap. 5 The new Fortran module mpi_f08** (optional talk – only for Fortran participants)
- 9:00 **Chap. 9-(1) Virtual Topologies** [3, continued] (talk+practical)
- 10:00 **Chap. 9-(3) Optimization through reordering** (short talk)
- 10:15 **Coffee**
- 10:30 **OpenMP – Overview and execution model** [7] (talk+practical 15min) 
- 11:45 **OpenMP – Work sharing directives** (talk+practical after lunch) 
- 12:30 **Lunch**
- 13:30 **OpenMP – Work sharing directives** (practical 30 min)
- 14:00 **Coffee**
- 14:15 **OpenMP – Data environment** (talk+practical 10min) 
- 15:00 **Short break**
- 15:10 **OpenMP – Summary and Pitfalls** (talk) 
- 16:30 **Coffee**
- 16:45 **OpenMP – Heat example** (talk+homework) 
- 17:00 **OpenMP- 4.0 and 4.5 Extensions** [7A] (talk)  7A omp 4.5
- 17:30 **Verifying an OpenMP Parallelization with the Intel Inspector XE** [--] (talk+pr.)  logh ZIH D2 ppt
- 18:00 **End**

Introduction Rolf Rabenseifner
[1] Slide 10 (3d)

3-Day-Course — Frankfurt — 3rd day

Message Passing Interface (part 3)



- 8:30 **Access to the federal high-performance computing-centers** [9] (talk) 
- 9:00 **Chap. 8-(1) Groups & Communicators, Environment Management** (talk+pr.)
- 9:45 **Chap. 12-(1) Derived Datatypes** (talk / no practical)
- 10:30 **Coffee**
- 10:45 **Parallelization of Explicit and Implicit Solvers** [38a] (talk) 
- 12:15 **Lunch**
- 13:15 **Chap. 10 One-sided Communication** [3, continued] (talk+practical)
- 14:30 **Chap. 11-(1) Shared memory one-sided communication** (talk / no practical)
- 14:50 **Coffee**
- 15:05 **Chap. 13-16 Parallel file I/O, MPI and Threads, Probe, Cancel, Persistent Requests, Process Creation and Managem.** (short tour)
- 15:35 **Chap. 17 Other MPI features / Summary** (talk)
- 15:45 **Coffee**
- 16:00 **PETSc Tutorial** [41] (talk)   
- 16:45 **Laplace-Example with PETSc** [42a+C] (talk+practical) 
- 17:45 **Summary / Q&A** (talk)
- 18:00 **End**

Introduction Rolf Rabenseifner
[1] Slide 11 (3d)

see also login-slides 