3-Day-Course — Paderborn — 1st day

Message Passing Interface (part 1)
8:30 Registration
9:00 Introduction [1] (talk)
10:15 Coffee
10:30 MPI – Introduction to the Message Passing Interface [3] (talk)
10:40 Chap. 1 MPI Overview (talk)
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. 5 The new Fortran module mpi_f08 (talk – only for Fortran participants)
18:00 End

3-Day-Course — Paderborn — 2nd day

Message Passing Interface (part 2) and OpenMP
8:30 Chap. 8-(1) Groups & Communicators, Environment Management (talk+pr.)
9:15 Chap. 9-(1) Virtual Topologies [3, continued] (talk+practical)
10:15 Coffee
10:30 Chap. 12-(1) Derived Datatypes (talk / no practical)
11:15 Short break
11:20 OpenMP – Overview and execution model [7] (talk+practical 15min)
12:15 Lunch
13:15 OpenMP – Work sharing directives (talk+practical 25 min)
14:30 Coffee
14:45 OpenMP – Data environment (talk+practical 10min)
15:30 Short break
15:40 OpenMP – Summary and Pitfalls (talk)
17:00 Coffee
17:15 OpenMP – Heat example (talk+homework)
17:30 OpenMP- 4.0 and 4.5 Extensions [7A] (talk)
18:00 Verifying an OpenMP Parallelization with the Intel Inspector XE (talk+pr.)
18:30 End
### Message Passing Interface (part 3)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td>Access to the federal high-performance computing-centers</td>
<td>talk</td>
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<tr>
<td>9:00</td>
<td>Parallelization of Explicit and Implicit Solvers</td>
<td>talk</td>
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<tr>
<td>10:45</td>
<td>Coffee</td>
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<tr>
<td>11:00</td>
<td>Chap. 10 One-sided Communication [3, continued]</td>
<td>talk-practical</td>
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<tr>
<td>12:15</td>
<td>Chap. 11-(1) Shared memory one–sided communication</td>
<td>talk / no practical</td>
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<td>12:30</td>
<td>Lunch</td>
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<tr>
<td>13:30</td>
<td>Parallel programming models on hybrid systems / MPI + OpenMP [23]</td>
<td>talk</td>
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<tr>
<td>15:00</td>
<td>Summary of the MPI &amp; OpenMP course / Q&amp;A</td>
<td>talk</td>
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<td>15:30</td>
<td>Coffee</td>
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<tr>
<td>15:45</td>
<td>Algorithmic differentiation with parallelism using OpenMP and MPI</td>
<td>talk</td>
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<td>(talk, PD Dr. Kshitij Kulshreshtha, Paderborn University, Institute for Mathematics)</td>
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<td>17:00</td>
<td>End</td>
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