The demand for accurate and reliable numerical simulations of complex phenomena is increasing exponentially across a broad range of scientific and engineering applications. Problems like modeling fractal formation in macroscopic elasto-plasticity, simulation of biological systems, flow and transport in fractured formations are extremely challenging and require specific knowledge to be addressed.

Moreover, modeling becomes even more expensive when several different configurations or scenarios must be considered or when the object of the analysis must be optimized according to some criteria.

In addition, Machine and Deep Learning approaches (such as PINN, Deep Learning ROM, Auto-encoders just to name a few examples) are beginning to play an important role in advancing scientific discovery in several engineering domains, traditionally dominated by the numerical solution of PDEs.

To address the request for larger simulations, involving billions of unknowns, the development of novel and technology-aware algorithms able to exploit modern HPC systems is of paramount importance.

The focus of this event is exploring the most recent methodologies available to accelerate simulation software on massively parallel platforms providing to researchers as well as practitioners a survey of the potentiality of HPC in real world applications.
When
2023
September 14th-15th

Where
PADOVA - ITALY
c/o Le Village by CA
Piazza Giacomo Zanellato 23

This event is organized by
Department of Civil, Environmental And
Architectural Engineering
of University of Padova
in collaboration with M3E

Keynote speakers

Massimo Bernaschi
Massimo Bernaschi is with CNR, the National Research Council of Italy as Chief Technology Officer of the Institute for Applied Computing. In 2012 he has been named “Cuda Fellow”.
He has been four times finalist in the Gordon Bell challenge.

Luis Crivelli
Luis Crivelli holds a PhD in Aerospace Engineering and he is currently Technology Director at Simulia Corp., Dassault Systemes.
He is also Lecturer of Software Engineering For Scientific Computing at U.C. Berkeley.
<table>
<thead>
<tr>
<th>Time</th>
<th>Thursday 14th</th>
<th>Friday 15th</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 - 09:15</td>
<td>Event opening</td>
<td>Second day opening</td>
</tr>
<tr>
<td>09:15 - 10:15</td>
<td>Keynote lecture: Massimo Bernaschi</td>
<td>Keynote lecture: Luis Crivelli</td>
</tr>
<tr>
<td>10:15 - 10:45</td>
<td>Coffee break</td>
<td>Coffee break</td>
</tr>
<tr>
<td>10:45 - 12:15</td>
<td>Session 1 (3 talks)</td>
<td>Session 4 (3 talks)</td>
</tr>
<tr>
<td>12:15 - 14:15</td>
<td>Lunch break</td>
<td>Lunch break</td>
</tr>
<tr>
<td>14:15 - 15:45</td>
<td>Session 2 (3 talks)</td>
<td>Session 5 (3 talks)</td>
</tr>
<tr>
<td>15:45 - 16:15</td>
<td>Coffee break</td>
<td>Coffee break</td>
</tr>
<tr>
<td>16:15 - 17:15</td>
<td>Session 3 (2 talks)</td>
<td>Session 6 (2 talks)</td>
</tr>
<tr>
<td></td>
<td>17:15 Closure of first day</td>
<td>Closure of second day</td>
</tr>
</tbody>
</table>

For the latest version of the schedule, visit: www.m3eweb.it/HPCSIM
Sponsorship

Under the auspices of
HPCSIM
FRONTIERS OF HIGH-PERFORMANCE COMPUTING IN MODELING AND SIMULATION
2023 SEPTEMBER 14th-15th
PADOVA, ITALY
www.m3eweb.it/HPCSIM