ExaTEPP – Knowledge Exchange and Training

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Hartree Centre

Knowledge Exchange

- Participating in EXCALIBUR KE regular meetings

- Exascale Computing Workshop at Hartree – May 2023 (86 – (14+10))

- KE with Hartree – UKAEA team working on modelling and simulation in the area of Nuclear Fusion (through Hartree - UKAEA joint centre of excellence in extreme scale computing in fusion)

- Considering KE in the area of performance portability (transferring approaches from Hartree's work with the MetOffice.

- KE with ECP – USA project through participating in particular deep dives of relevance to ExaTEPP in particular with ORNL and LLNL.

General Points

- Technical Course suitable across science domains with case studies inn particular use in PP

- Blended mode of delivery: self learning materials with scheduled life online tutorials/discussions on introductory and learner level

- Presential courses on independent user level and workshops on practitioner level

- Training Steering Group

Training and Upskilling – Stearing Group

- V. Alexandrov, N. Alexandrov, Sue Thorne,
- Representative from EXCALIBUR KE network,
- Davide Constanzo,
- Luigi Del Debio,
- Biagio Lucini

Training and Upskilling for the project

Tailored courses in the areas of:

- Performance portability and efficiency on heterogeneous HPC architectures
- Modelling processing with high precision and (using) high order methods
- Exascale Tools- Capability scale computing
- Advanced parallel libraries and testbeds
- Advanced Simulation and UQ approaches

Training and Upskilling for the community

Training for the community based on the results from the project :

- ExaTEPP codes dissemination
- HPC/RSE Transferable skills for Exascale PP
- Efficient co-design approaches

Training and Upskilling

Already available courses self-learning on line:

- Hartree Training :
https://www.hartree.stfc.ac.uk/training-skills/
- Entrance levels:
  - Beginner's guides
  - Practical guides
  - Fundamentals of …
- Subject areas:
  - HPC to Exascale
  - Data Science
  - AI & modelling
  - Software engineering
  - Emerging Technologies

Training and Upskilling

Already available courses from other partners:

- Please let me know ….

Science and
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Workshops & Presential Schools

Already Delivered workshops:
(H1)On the Trail of Exascale – May 2023

Workshops x 4 (1.5 days)

(H2) Performance Portability and Efficiency

(H3) Co-design approaches

(H4) Final Dissemination Wsh

Engagement with Farscape & the Deep dives from ECP

Presential schools. x 4 (2-3 full days)

(H2)Computing for PP community

(H3) Modelling and big data

(H2 -H3) GPU programming & portability to AMD(?)

(H4) Project codes and how to use them

Dissemination

- project page & shared work space behind login

- social media around events (8)

- Letter x4

- outreach material (?)

Application areas industry (incl. public sector)

Hartree is supporting digital innovation in the following thematic application areas with a sector based approach, underpinned by transferable technologies and skills to ensure maximum impact

Materials	Transport, Logistics	Health, Wellbeing & Life Science
Environment, Energy	Industry 4.0	Process Engineering
Nuclear Fusion & cognate areas	Security and Defense	Smart Regions