



# EXALAT @ UKLFT

**Who we are, where we are going and what we need from you**

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EPSRC



# the exalat project

- WG funded by ExCALIBUR - initial funding for a year
- develop a **roadmap** for a **broad community** to exploit **exascale** facilities by the mid-2020s
- provide **benchmarks** and identify **bottlenecks**
- develop **novel algorithms**
- **Board:** Vassil A (STFC Hartree), Jonathan F, Andreas J, Biagio L, Antonio R
- everybody is welcome!
- material @ <https://www.exalat.org>

# the roadmap

- 15-17/06: organised a (well-attended) kick-off workshop
- identified **scientific goals** accessible with exascale hardware (heavy, resonances, light, BSM, hot&dense)
- challenges with **software development** in heterogeneous computing environments (Peter B)
- Kevin S (EPCC) seeded a discussion on **training** (more later)
- reach out to other areas - fluid dynamics, collaborative work with Hartree
- **data**
- **industrial** partners (more later)

# workshops

- 22/07: training workshop
- 19/08: data curation workshop
- 19/08: algorithm workshop
- 08/09: benchmarking workshop
- spring 21: summary workshop...

**all virtual!**

# training

- targeted skills needed for new architectures
- 15-16/02: school on GPU programming (EPCC, RSE)
- 01-05/03: executable binaries (Antonin P)
- now: school on data parallelism in **collaboration with ExCALIBUR-HEP**
- hackathon (Biagio?)
- all the material is available on our website... future plans

# benchmarking

- Antonio R & Biagio L are part of the ExCALIBUR benchmarking team
- developing a suite based on SOMBRERO and Grid
- benchmarking using Grid on Juelich-Booster, Cineca-M100
- need to identify the right 'measure' for benchmarking new systems
- benchmarking with 'real code' has played a central role in the procurement of the new DiRAC ES system in Edinburgh
- EXALAT will continue to engage with vendors/ExCALIBUR/DiRAC to provide benchmarking tools for future architectures

# data

- data curation/open access are important
- link between our community and DiRAC
- explored some solutions, expertise in HEP PPE, joint solutions
- Jonathan F & Antonin P have looked into possible solutions
- EXALAT needs to come up with a solution to be scrutinised/costed
- we should organise another meeting later on

# industry

- several industrial partners in EXALAT — underused...
- building partnership with vendors through DiRAC procurement
- engage in **joint** activities - don't expect industry to be interested in our research
- role for RSEs? specific persons in charge of building relations? (PRACE)
- under construction...



# conclusions

- it was a good start...
- targeted training went well and will continue
- benchmarking is progressing
- format for future training? UKLFT support for face-to-face meetings?
- do we have the energy to write a 'white paper'?  
have a science case
- we need to talk to other communities & industry
- role & career path for RSEs