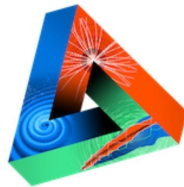


JENA WP1 kick-off meeting

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April 22nd 2024



JENAA

Joint ECFA-NuPECC-APPEC Activities

ECFA

European Committee for Future Accelerators



NuPECC

 **APPEC**

Live notes

We will use a shared google document to take live notes and to share comments

https://docs.google.com/document/d/1ei5XMzLsuWO4WlKr_c1XCKMslaQorkgOXAZUucSAPm4/edit?usp=sharing

Please add your name there as attendant to the meeting today

Background

At the JENA Symposium in May 2022 in Madrid (<https://indico.cern.ch/event/1040535/>) both the plenary presentations and the closed session of funding agency representatives revealed that there is an increased need for discussions on the strategy and implementation of European federated computing at future large-scale research facilities.

A JENA workshop on the strategy of computing was celebrated in Bologna in June 2023 (<https://agenda.infn.it/event/34738>) aimed to define what are the computing requirements in the next decade and to try and find synergies both in facilities and software.

Main conclusion at the Bologna-Workshop was the creation of five working groups in order to coordinate a white paper as input for the next JENA Symposium in 2025:

- **WG1: HTC, WLCG and HPC (HPC)**
- WG2: Software and Heterogeneous Architectures (Software)
- WG3: Federate Data Management, Virtual Research Environments and FAIR/Open Data (Data)
- WG4: Machine Learning and Artificial Intelligence (AI)
- WG5: Training, Dissemination, Education (TDE)

HPC Working Group - scope

Increase the relationship of the WLCG system with HPC centres and the integration of HPC resources with our current computing infrastructures.

For Europe, there is a need to engage at a higher level with EuroHPC.

Contrary to the past, there is an opportunity to shape the evolution and policies of HPC facilities towards the ECFA-NuPECC-APPEC (ENA) sciences' needs with the goal of both augmenting the computing capacity available for this community and facilitating the federation with existing data facilities.

JENA Computing Workshop:

Executive summary and next steps

Joint ECFA-NuPECC-APPEC computing meeting took place on 12-14 June 2023. Agenda: <https://agenda.infn.it/event/34739/timetable/>

There was a European focus, however, with worldwide implications. Many experts from the 3 research fields including several European WLCG members and Frank Wuerthwein from OSG were present (invitation only).

Motivation: at the Joint ECFA-NuPECC-APPEC (JENA) Seminar in May 2022 in Madrid (<https://indico.cern.ch/event/1040630/>), both the plenary presentations and the closed session of funding agency representatives revealed that there is an increased need for discussions on the strategy and implementation of European federated computing at future large-scale research facilities. In particular, synergies between the three areas should be identified.

Main goals: identify the computing requirements in the next decade and identify synergies that can benefit all the three communities (Particle Physics, Nuclear Physics and Astroparticle Physics) as well as neighbouring research fields like Astrophysics or Cosmology.

Conclusions at the Bologna-Workshop:

Five major areas for follow-up discussions were identified:

- HTC, WLCG and HPC (HPC):** The relationship of the WLCG system with HPC centres and the integration of HPC resources with our current computing infrastructures. For Europe, there is a need to engage at a higher level with EuroHPC. Contrary to the past, there is an opportunity to shape the evolution and policies of HPC facilities towards the ECFA-NuPECC-APPEC (ENA) sciences' needs with the goal of both augmenting the computing capacity available for this community and facilitating the federation with existing data facilities.
- Software and Heterogeneous Architectures (Software):** There is a large spread of software used in ENA, from very generic to highly specific. One of the main challenges into the future is the fact that available computing will increasingly appear with heterogeneous architectures (as well as ARM, we have GPUs, perhaps FPGAs). In order to make effective use of these processors and increase the efficiency of our code by factors we will need Research Software Engineers and domain experts who optimise the current code and also who engage in exploratory software R&D activities, rethinking algorithms. There will be significant domain level differences in applications, but substantial overlap in skills and techniques. It is important to convey the message to funding agencies that it is crucial to invest in training, hiring and retaining people with this profile. This is also seen as one of the main opportunities to address sustainability.

HPC Working Group - scope

The overall goal is to try and have a coordinated voice from the three JENA communities towards EuroHPC, the organisation that plans, runs and manages the funding for the large HPC machines in Europe.

Concrete goals:

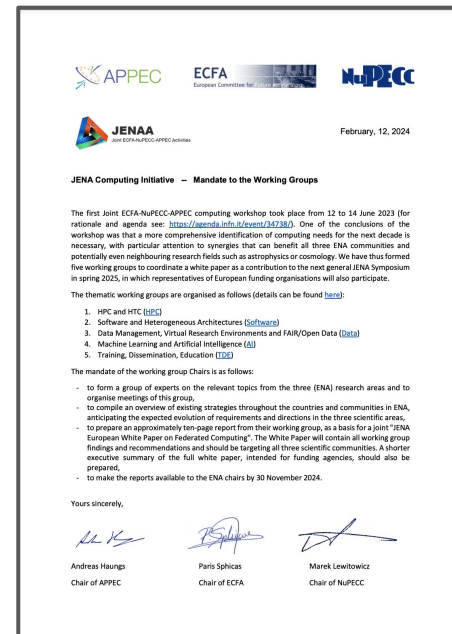
1. Try to get some "priority/strategic" long-term allocation in EuroHPC so that ENA experiments could access a number of CPU/GPU hours/year without the need to submit proposals quarterly.
2. Have a voice in the planning process for the large HPC in Europe, both at the design level (e.g. ask for more or less CPU vs GPU or certain network requirements) as well as the operations level (e.g. ask for consistent backfill mechanisms in all the EuroHPC machines so that idle cpu-hours could be used by opportunistic workloads).

Timescale, vision and mandate

The ECFA, NuPECC and APPEC chairs have tasked WGs with a clear mandate to produce a report summarizing our findings by the **end of November** this year.

- 10 page report + 1 page executive summary for F.A.s

The review and recommendations should target having an impact in the upcoming 3-5 years (standard funding cycle for many projects/facilities).



Working Group Members

With the people that expressed interest in WP1 via indico plus a few additions, we have now up to 40 members in the Working Group:

Gergely Gábor Barnaföldi
Tommaso Boccali
Concezio Bozzi
Andrea Chierici
Sabine Crépe-Renaudin
Luca dell'Agnello
Guenter Duceck
Laurent Duflot
Josep Flix Molina
Henryk Giemza
Manuel Giffels
Andreas Haungs
Håvard Helstrup

Fabio Hernandez
Jose Hernandez
Abdeslam Hoummada
Balazs Kacs Kovics
Gabriele-Elisabeth Koerner
Clemens Lange
Mario Lassnig
Zach Marshall
Bryan McKinnons
Johan Messchendorp
Antonio Perez-Calero Yzquierdo
Andreas Petzold
Ádám Pintér
Eva Santos

Kilian Schwarz
Oxana Smirnova
Daniele Spiga
Gabriel Stoicea
Nadia Tonello
Wojciech Wiślicki
Andrej Filipcic
Dmytro Kresan
Stefano Piano
Fabio Affinito
Hans-Christian
Maria Girone
Simone Campana