Cross-Topic-C in PAHN-PAN
Training, education and outreach

Goal:

Train the next generation of scientists (students, postdocs) in computing skills in general and PAHN-PaN specific topics in particular

Integrate activities in existing efforts such as
- lectures and courses at universities
- Helmholtz-Alliance courses
- GridKa school at KIT
- CERN school of computing

Use existing infrastructures for training
- institutes with lecture halls, CIP pools, GPU servers, jupyter servers etc.

Links to all task areas and all other cross-topics

Cross-Topic-C in PAHN-PAN
Training, education and outreach

Interested institutes (co-applicants):

Aachen
Darmstadt
DESY
Dortmund
Frankfurt
Goettingen
Hamburg
Heidelberg
Juelich
KIT

Muenster
DPG

Cross-Topic-C in PAHN-PAN
Training, education and outreach

Tilman Plehn (Heidelberg)
So aus Sicht eines Süddeutschen sollten wir vielleicht darauf hinweisen dass wir in Richtung ML ausbilden. Da ist der Bedarf in der Industrie gigantisch, …

Andreas Redelbach (FIS Frankfurt)
the main contribution from FIAS towards education/training/outreach shall be "Task Area 4 related topics". At the FIAS we have quite some experience in strategies to optimize online data analysis towards fast readout and processing. This experience has been developed over many years in the context of ALICE High Livel Trigger, ALICE Online-Offline Framework and also in preparation of the CBM First Level Event Selector at the Green-IT cube of GSI. Since we are aware of the essential role of this task I would like to summarize the lessons learnt and potenially support colleagues setting up frameworks and underlying software for efficient high-performant usage.

At the moment we have not prepared teaching material for task4 and I am wondering if you need more specific input from my side before the meeting next week.

Maybe as a personal aside:
Before joining FIAS, I have worked in Thomas Trefzger's group at Wuerzburg co-organizing locally the International Particle Physics Masterclasses. I would like to stress that the Masterclasses are a very good example for successful outreach and the PAHN community should try to particate or even extend this project. It would be great if all communities (Particle Physics, Astroparticle Physics and Nuclear Physics) could contribute to future events ("Masterclasses") and ideally could also highlight common topics, e.g. computing or data analysis.

Cross-Topic-C in PAHN-PAN
Training, education and outreach

Arno Straessner (Dresden)
in Dresden nutzen wir, wie viele andere auch, Machine Learning und Deep Learning für unsere Datenanalysen und sind dabei, dies auch auf Signalrekonstruktion von Detektoren zu übertragen.

Daher hatten wir im LoI formuliert, dass wir an der Organisation und evtl. Ausrichtung von Workshops/Schulen in diesem Bereich Interesse haben.

Da es in Dresden auch Outreach-Expertise gibt, können wir dies auch in den Outreach von Pahn-Pan einbringen, wie auch immer das aussehen soll.

Stefan Krieg (Juelich)
… interest in/focus on lattice QCD …
This effort will generate an expert on the systems, on the codes, and on the environments. The skill and knowledge gained should be disseminated in workshops and tutorials open to anybody who's interested. In particular I am thinking about a series of workshops ("Lattice Practices") we are co-organizing alternatingly at FZJ and DESY Zeuthen and about hands-on labs or hackathons.

Anton Andronic (Muenster)
A couple of things about Muenster University, where at Institut fuer Kernphysik, in collaboration with our colleagues in theory and with the University's IT center ZIV (all part of GRK 2149, Strong and Weak Interactions - from Hadrons to Dark Matter) we do (since many years):
- Training in Computational Physics starting at Bachelor level (PYTHON courses etc.)
- Outreach activity: masterclasses with data analysis (Programming) and VR

Cross-Topic-C in PAHN-PAN
Training, education and outreach

Topics:

- Data processing, data management and online analysis (relates to TA 1 and TA 2)
- Basic methods of data analysis methods (relates to TA 3)
- Machine Learning (relates to TA 3)
- Data reduction (relates to TA 4)

Target group:

- Schools → develop computing masterclasses (grid, ML, big data)
- Students → courses, workshops, topical schools (rotate between universities & institutes)
- Researchers → advanced schools, links to CHEP and other conferences

Complementary to / in collaboration with
- GridKa school
- CERN School of Computing (CSC)
- Helmholtz Alliance/DESY schools and workshops

Lecturers and material collected in community to be used in PAHN-PaN events
PAHN-PaN material to be used in regional or local events (courses, lectures) or in other cross-topics