WP12 Software

General Meeting

F. Gaede, DESY
G.A.Stewart CERN
21.06.2021

HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

Tasks in WP12

and nominated task leaders

- **Task 12.1. Coordination and Communication** (CERN, DESY)
  - G.A.Stewart, F.Gaede
- **Task 12.2. Turnkey Software** (DESY, CERN, INFN-PI, INFN-PD, INFN-BA, INFN-BO, IHEP, SDU)
  - Turnkey Software Stack, for physics and performance studies, EDM4hep, PODIO and Digitisation toolkit
  - R&D study on frameworks to manage heterogeneous resources
  - T.Madlener
- **Task 12.3. Simulation** (CERN, DESY, CNRS-IJCLab, UNIMAN)
  - Fast simulation techniques integrated into Geant4
  - Machine learning based calorimeter simulation toolkit for training and inference
  - W. Pokorski (A.Zaborowska)
- **Task 12.4. Track Reconstruction** (CNRS-IJCLab, CERN, DESY, INFN-FE, INFN-BO)
  - complete track reconstruction with ACTS composable algorithms and for heterogeneous computing
  - Machine learning reconstruction algorithm for MPGD detectors
  - H.Grasland
- **Task 12.5. Particle Flow Reconstruction** (UWAR, CERN, INFN-RM3, CNRS-LLR, CNRS-IP2I, UOS)
  - PFA algorithms for DUNE and dual-readout calorimeters, APRIL PFA for hadronic jets
  - J. Back (J. Marshal)

leave it open to task leaders to nominate a co-task leader to share the work

Deliverables and Milestones

in WP12

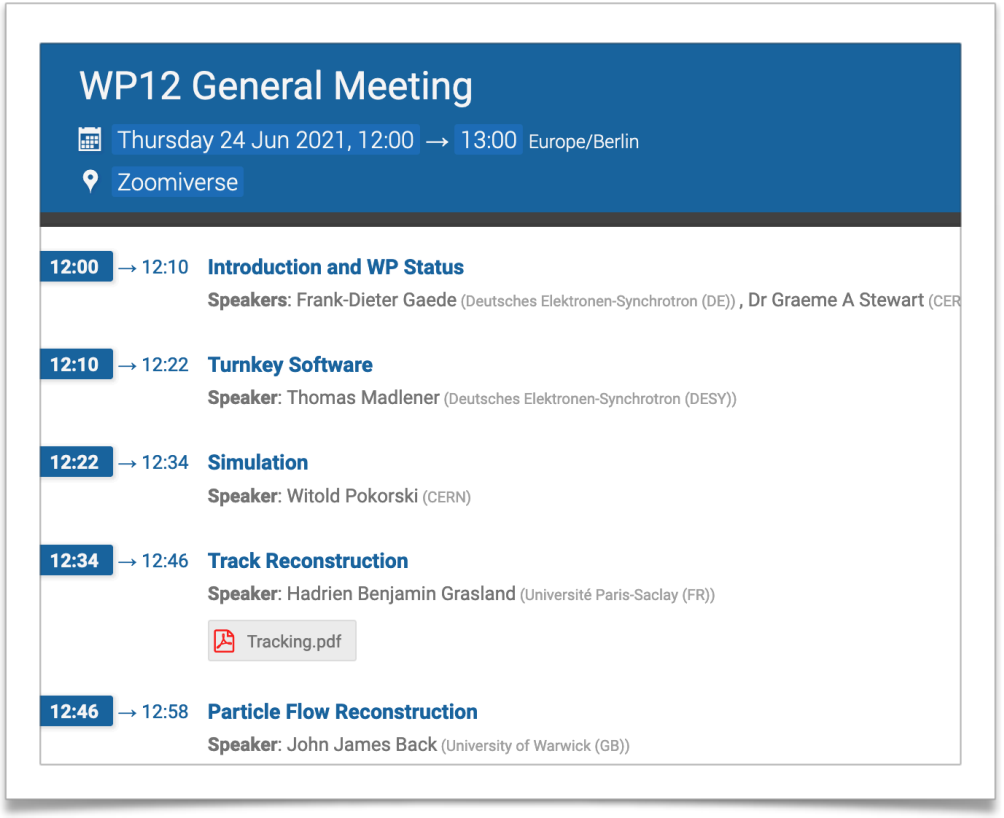
Deliverable	Title	Due Date
D12.1	Turnkey Software Stack (Key4hep)	46
D12.2	Fast shower simulation in Geant4	45
D12.3	ACTS tracking algorithms	43
D12.4	PFA reconstruction	45

Milestone	Title		Due Date
MS48	LC reconstruction prototype in Key4hep	Reproduce similar detector performance as achieved with the current framework	21
MS49	Prototype of ML based shower simulation	Runnable example code that simulates part of the showers with ML algorithms	22
MS50	ACTS tracking algorithm prototypes	Runnable test cases which demonstrate algorithm functionality on benchmark data from TrackML	23
MS51	New PFS prototypes	Runnable test cases which demonstrate algorithm functionality on benchmark data	23

Goals for today

- round table through our tasks
  - scientific progress
  - hiring
  - …
- decide how we would like to organise the work in WP12 over the next four years
  - proposal from last time was slightly ambiguous:
    - general meetings every **8** or 4 weeks ?
    - probably 8 weeks more suitable !

proposal from kick-off:
- identify a suitable monthly (every 4 weeks) time slot (1-2 h)
  - use for WP12 *round the table* meetings
  - interleaved w/ task meetings (where needed)



Regular slot for WP12 meetings: Thu 12:00