WP12: Software for Future Detectors

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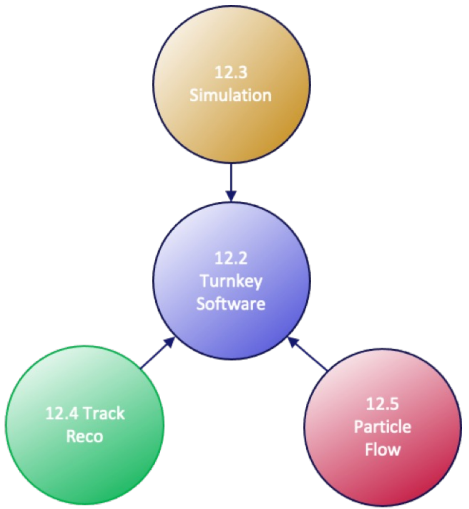
WP12 Session at the 3rd Annual meeting, 2024-03-18

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004761.

Welcome

- Welcome to the AIDAinnova Third Annual Meeting, Software for Future Detectors session
- We look forward to a great meeting and a productive time together with colleagues during our hackathon sessions



Project Progress

- The project successfully passed it's first EU external review in early 2023
- After having all milestone documents submitted on time and had positive feedback from the management review

Milestone	Title	Due Date	Task
MS47	LC reconstruction prototype in Key4hep	December 2022	Turnkey 12.2
MS48	Prototype of ML based shower simulation	January 2023	Simulation 12.3
MS49	Acts tracking algorithm prototypes	February 2023	Tracking 12.4
MS50	New PFA prototypes	February 2023	PFA 12.5

Prepare for final Deliverables

- The final deliverables are our strategic final objectives in WP12
- The first one is due already this fall ~ 6 months from now !

Deliverable	Title	Objective	Due
D12.1	Turnkey software stack (Key4hep)	Fully functional turnkey software stack (Key4hep) with simulation, track reconstruction and particle flow algorithms running for the linear colliders and the FCC, using the common event data model (EDM4hep), with documentation and examples	M46 Jan 2025
D12.2	Fast shower simulation in Geant4	Fast shower simulation based on parameterisations and based on machine learning techniques fully integrated in Geant4, released with documentation and examples	M45 Dec 2024
D12.3	Acts tracking algorithms	Track reconstruction algorithms incorporated into Acts, and fully documented, that manage the full tracking chain on CPU and non-CPU devices, with optional machine learning based algorithms available, also supporting MPGD detectors	M43 Oct 2024
D12.4	PFA reconstruction algorithms	Improved and documented particle flow algorithms, including machine learning based algorithms, available in the PandoraPFA toolkit, suitable for detectors using new readout technology	M45 Dec 2024

Publication and Conferences

- Please remember to put an acknowledgement of AIDAinnova funding on your WP12 related presentations and publications:

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Today's Meeting

Introduction	*Frank-Dieter Gaede et al.*	
Sala Alessi	14:20 - 14:30	
Task 12.2 Turnkey Software	*Andre Sailer et al.*	
Sala Alessi	14:30 - 15:00	
Task 12.3 Simulation	*Anna Zaborowska*	
Sala Alessi	15:00 - 15:30	
Task 12.4 Tracking	*Hadrien GRASLAND*	
Sala Alessi	15:30 - 16:00	
Coffee Break		
Bar 1st floor	16:00 - 16:20	
Task 12.5 Particle Flow	*John James Back*	
Sala Alessi	16:20 - 16:50	
Discussion and Wrap-up		
Sala Alessi	16:50 - 17:20	

- We have a live notes document: https://codimd.web.cern.ch/eDOURQAgRAu3zsmkLOLcPQ?both
- Plenary summary will be *Wednesday afternoon*

Hackathon Days

- We have official hackathon time all day tomorrow and Wednesday morning
  - We have one room for the hackathon – to be announced …
- Given the attendance and interests, mainly we anticipate working on Turnkey and Simulation topics
- Anticipate a quick discussion tomorrow morning to decide on how to focus our attention