Work package 1:
Software, Computing, Physics
NEWS

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RD-FCC Meeting

March 30, 2023

New similfellows started on March 1

- Adelina D'onofrio (Roma 3)
- Agostino De Iorio (Napoli Federico II)
- Flavia Cetorelli (Milano Bicocca)

Activity under definition/discussion

Welcome

MARK YOUR CALENDARS

- First USA FCC Workshop @BNL, 24/26 April https://www.bnl.gov/usfccworkshop/
  - 3 talks for IDEA
- ***End of April: Draft of internal notes for mid-term report***
- CSN1 May 17-19
- FCC Week 2023, @London, 5-9 June

GOALS about simulation/reconstruction for June FCC week

- Full simulation of IDEA in Geant4
  - prototype of PFlow reco?
  - validation of output in EDM4HEP
  - setup MC generation at CNAF
- Complete Geometry simulation in DD4HEP
- Prepare new tutorials

Plans for mid-term report: physics

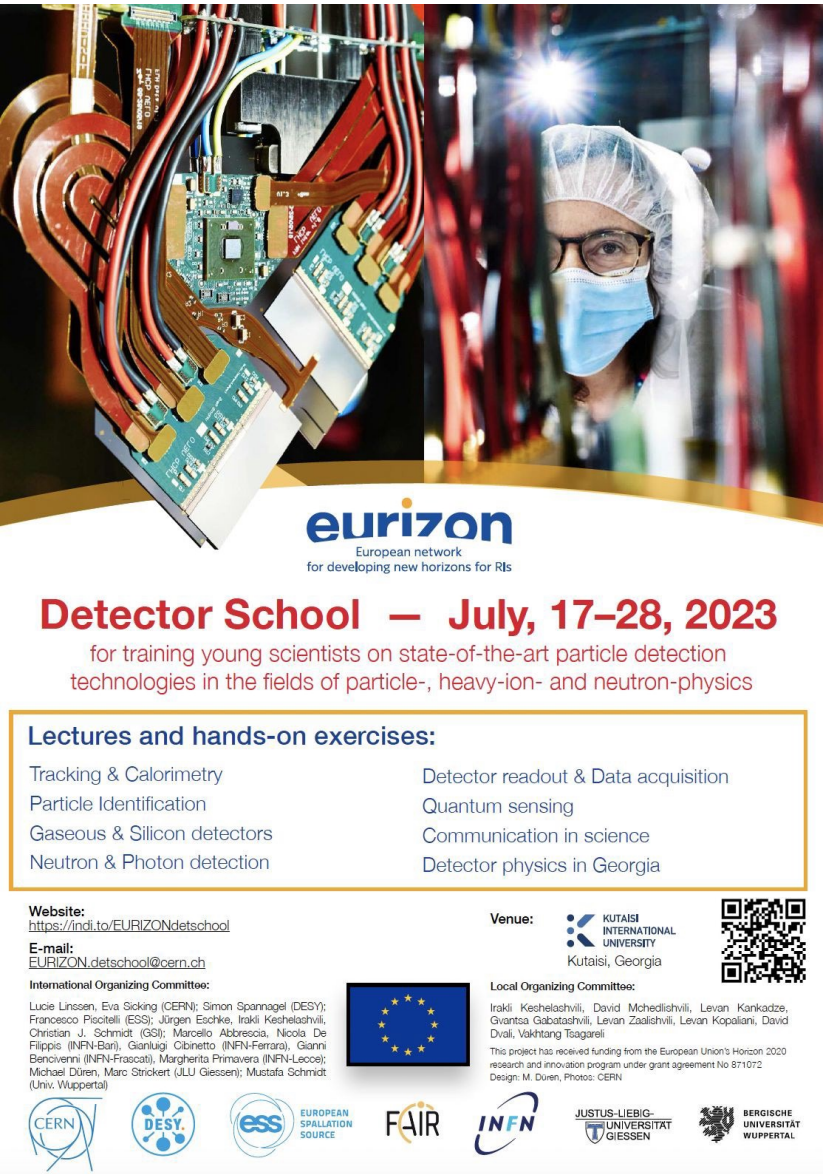
- **[from management] Draft documents by end of April.**
  - results should be presented as table/plots showing detector requirements obtained from the study
- **Candidates:**
  - Higgs hadronic : extract detector requirements (CALO)
  - AFB(bb): requirements on b-tag->vertex?
  - Anomalous top couplings: requirements on b-tag->vertex?
  - *Bs->DsK: requirement on vertexing/PID? also ECAL?*
  - *Anything else new?*

Case Studies vs Detector Requirements(WIP)

	Track mom. reso	Impact Par reso	PID	ECAL reso	ECAL granularity	HadronicMassRes. PFlow	lep/pi separ.	Comments
mH from recoil mass, Z(mumu)H	+							
tau -> 3 mu	+ (collimated tracks)							
B-field monitoring from JPsi, D0's	+ (low momenta)							
B0, Bs to mumu	+						+	
Z(ll)H(qq) for Hbb, Hcc, Hgg		+				+		
Vcb from W decays		+ (high purity WP)						
EW HF observables (Rb, Rc, AFB)		+						
B to K* tau tau		++ (soft tracks)	+		+ (pi0 in jets)			also efficiency for low p tracks
Tau Lifetime		+						systematics to be understood
gamma from Bs->Ds K	+	+	+	++				
Z(ll)H(ss) (BSM)		+	+			+		
Vcs from W decays		+	+ (high purity WP)					
B->pi0pi0				+	+			
B->pi0pi0 w/ Dalitz		+			+			
Tau polarization (Z to tautau)			+	+	+	+(tau reco)		
ve coupling Z->vvgamma				+				
tau->mugamma				+	+(spatial)			
ALPS, ee->agamma				+	+(spatial)			
sigma(ZH) from recoil avec Z->qq						+		also testing Pflow algo
Higgs width: ee->vvH, H->bb		+				+		also testing Pflow algo
bb,cc,gg coupling ZH-> qqqq		+				++(association)		testing association/jet clustering
m(top) direct in ee->tt->qqbqqb,lvbqqb	+	+		+		++(association)		testing association/kinematic fit
Higgs Width ZH->qqqqqq		+				++(association)		testing association/kinematic fit
m(W) direct reconstruction	+			+		++		kinematic fit
AFB(bb,cc)		+				+(jet charge)		
H->inv						+		
Total x-section at the Z								inclusive. calo selection, ECAL & HCAL resolutions
LLP, very displaced objects								granularity of ECAL,HCAL,timing, Muons
electron Yukawa, H->gg (at the pole)						++		qq/gg separation

https://docs.google.com/spreadsheets/d/1BzRUynbNe_khX8LAgeQQz2tE9LV25i4rlVY83oX_ftY/edit?usp=sharing

Announcement of the EURIZON Detector School



The EURIZON school on particle detector technologies will take place at **Wuppertal** (Germany) on July 17-28, 2023.

Website of the school:
http://indi.to/EURIZONdetschool
The deadline for applications is **April 11, 2023**.

Plans for the next meeting

- Testbeam analysis results
- Plans for the testbeams in 2023