Laboratoire de Physique de Clermont-Ferrand

D. Calvet

ATLAS France CAF-PAF meeting
9th December 2021

Team

Composition of the team
- → *4+2 CNRS, 1 Prof, 1 Post-doc, 4 PhD*
- → *Spin correlations in ttbar, di-Higgs search, BSM searches with ML*

Involvement of the team in computing
- → *local T2 (staff IR)*

Involvement of the team in software
- → *analysis frameworks development/maintenance*
- → *general software development (pyBumpHunter in SciKit-HEP)*
- → *monitoring framework (Tile) maintenance (staff IR)*
- → *calibration framework (HGTD) development*

Computing resources in 2021-2022

« Grid » pledged resources in 2021
- storage = 1500 TB in 2021 (will increase by 46% in 2022)
- computing = 19000 HS06 in 2021 (will increase by 26% in 2022)

Other « grid » resources *(if available, correspond to non pledged resources)*
- storage = 22 TB i.e LOCALGROUPDISK in 2021
            (will not increase in 2022)
- computing = 3500 HS06 in 2021 (will increase by ?% in 2022, not used)

Other local (lab, university) resources *(whatever is non grid)*
- storage: 180 TB
- computing: servers+batch cluster (312 cores / 700 GB RAM)
- high performance computing : 1 server with V100 GPU

Analysis and needs

Analysis hh measurement
- → contribution in analysis framework and grid job submission
- → flow : DAOD -> nutple ~3TB (EOS)
- → up to 3 weeks to process one version
- → mostly grid-based
- → good points: centralized production

Analysis spin correlation
- → main contributions in end-of-chain tools (stat interpretation, plots, ...)
- → flow: DAOD -> AnalysisTop -> ntuples -> user tools
- → analysistop ran on grid, user tools ran locally or on batch system

Machine Learning studies
- → BSM agnostic searches using novel ML approaches
- → mttbar shape fit (BSM)
- → GPU: local cluster (Nvidia V100)
- → GPU CC-IN2P3: difficult to define what is needed but would like to test

Near future

Activities of the team

→ *no big evolution foreseen (except +20 % increase in staff)*

Resources and needs

→ *local resources stable*

→ *would like to try GPU at CC-IN2P3*

Details on Software involvement

Total software involvement = 0.55 FTE

Name	OTP	Activity	System	Task	FTE
S. Binet	X	Computing/Software	TileCal	HV monitoring software development	0.15
R. Madar	X	« Analysis support »	Spin correlation analysis group	Analysis group framework, ntuple production	0.2
O. Perrin	X	« Analysis support »	Hh multilepton analysis group	Analysis group framework, ntuple production	0.2

Details on Computing involvement

Total computing involvement = 0.75 FTE

Name	OTP	Activity	System	Task	FTE
J.-C. Chevaleyre (not in OTP)	C4	Computing/Software	General Tasks	FR LPC, Clermont	0.75