LAPP

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ATLAS France CAF-User meeting
Lyon, 9th december 2021

Team by end 2021

- **Composition of the team**
  - *9-10 (~7 effective FTE) physicists with permanent position / 3 post-docs (2.5 FTE) / 2 PhD in physics*
  - *Post-docs funded by Labex, EOSC-FUTURE*
  - *~15 (~10 FTE) engineers in mechanic, electronic, online and Grid*

Involvement of the team in computing

→ *Physicists : Site support+CAF+ DOMA/ESCAPE/EOSC R&D*

→ *Engineers : Site operation (share of MUST platform to ATLAS)*

→ *ATLAS Open Data on Grid for/funded ESCAPE/EOSC ~ 1 FTE (Arturo S.P., J. Little)*

Involvement of the team in software

→ *LAr online*

→ *Analysis support, trigger*

- *Implementing/using ML tools for analysis*

M. Belfkir : egamma ML contact (→ Left after PhD defense)

Computing resources in 2022

« Grid » resources (pledge 2022 bought and being deployed)

- storage = Pledge 2022 deployed : 3.700 PB (+25 % compared to 2021)
- computing = 30 kHS06 in 2021 (+20 % en 2022 : Being deployed)
- 20 Gb/s connection (start to be limiting factor)

Other « grid » resources

- storage = 150 TB LAPP_LOCALGROUPDISK (out of warranty recycled GRID storage). Possibility to increase by 300 TB each year
- computing = 0
- FR-ALPAMED storage federation for DOMA/ESCAPE R&D (CPPM/LPC/LPSC/LAPP) : 100 TB
    - o Integrated in proto-datalake for ESCAPE

Other local (lab, university) resources

- ~30 TB sps at CCIN2P3
- Local batch resources also shared with Grid → Very efficient to start jobs
- Few interactive machines shared within laboratory

Analysis and needs for 2022

Multiboson analysis (WZ and Zy) :

→ Use dAOD stored on sps (small format) and LOCALGROUPDISK (bigger format)

→ In 2021, processed on CCIN2P3 batch (choice between LAPP and CC adapting to effective availability and reliability)

→ 2022 : Mainly finish Run-2 analysis and prepare migration to Rel 22

Search for DM in dilepton+MET channel (funded by EOSC-FUTURE)

→ **EOSC** Post-doc : 50 %, EOSC Open data : 50 %

BSM search with Heavy resonance combination:

→ Run many small jobs for scans of the coupling plains (2022-2023)

Single **Higgs / HH**

→ Mainly coordination activity (HH expected to restart in 2023-2024)

Analysis and needs(2)

EFT interpretation

→ **Single and di-Higgs, Drell-Yan (dileptons)**

- Diboson hopefully soon
- Submit Grid jobs from Lyon
- 2 internships in 2022 for Drell-Yan, might start PhD in fall 2022 (funding needs to be found)

Egamma :

→ Almost no activity in 2022 due to lack of manpower

Near future

- **Activities of the team (>2022)**

  → *ACTS : Starting thanks to ATRAPP project funded by ANR (Jessica-David R.)*

  - *Post-doc for 2 years starting in 2022 (Pure ML activity)*
  - *Master student might start PhD in fall 2022 (Additionnal funding to be found)*

  → *EOSC funding for SP as demonstrator of doing analysis with ATLAS Open Data : Jared Little started in late 2021*

  - *Opportunity to get post-doc doing also ATLAS internal analysis as part time*

Near future (2)

Resources and needs :

Global :

→ *Global needs in CPU will increase with data (preferentially CC-IN2P3). Also need for GPUs. Ramp-up will depend on start of Run-3 activity*

→ *Next 'Accord labo-LCG' for WLCG is important*

Shared resources in Lyon

Details on Software involvement (2021)

Information taken from this link
Software involvement = 3.22 FTE (was 2.33 in 2020), S&C+AS Activity = 0.42 FTE (Core=0, Detector=2.80, Ana/Reco=0.42 (Upgrade=0.02))

LAr detector: 2.40 FTE (Detector=2.40) [S&C+AS=0]

Name	OTP	Activity	System	Task	FTE
F .Bellachia	C3	Detector Operation	LAr	LAr online software	0.30
N. Chevillot	C3	Detector Operation	LAr	LAr online software	0.60
N. Dumont Dayot	C3	Detector Operation	LAr	LAr online software	0.10
T. Guillemin	C3	Detector Operation	LAr	LAr online software	0.60
S. Lafrasse	C3	Detector Operation	LAr	LAr online software	0.20
E. Sauvan	C3	Detector Operation	LAr	LAr online software	0.20
L. Selem	C3	Detector Operation	LAr	LAr online software	0.40

Trigger: 0.40 FTE (Detector=0.40) [S&C+AS=0]

Name	OTP	Activity	System	Task	FTE
T. Hryn'ova	C3	Trigger	General Tasks	egamma software and performance	0.20
O. Lavoryk	C3	Trigger	General Tasks	egamma software and performance	0.20

Details on Software involvement (2021)-2

Reco/Ana: 0.34 FTE (Reco/Ana=0.42) [S&C+AS=0.42]

Name	OTP	Activity	System	Task	FTE
A. Sanchez	C3	Computing/Software	General Tasks	Analysis Model Group	0.20
E. Sauvan	C3	Computing/Software	General Tasks	Group Activities	0.04
M. Belfkir	C3	Analysis Support	General Tasks	Perf Egamma	0.08
S. Jezequel	C3	Analysis Support	General Tasks	Perf Egamma-Upgrade	0.02
A. R. Cueto Gomez	C3	Analysis Support	General Tasks	Validation/Generatpr	0.08

Other (ACTS etc ...) : Only in 2022

Name	OTP	Activity	System	Task	FTE
J. Léveque		ACTS		ML for tracking	

Details on Computing involvement (2021)

Information taken from this link
Total computing involvment : 1.26 FTE (was 1.68 in 2020)

Name	OTP	Activity	System	Task	FTE
S. Jezequel	C3/ C4	Computing	General tasks	Cloud support from time to time	0.10
E. Sauvan	C3	Computing	General tasks	Group management	0.05
F. Chollet	C4	Computing	General Tasks	Site support	0.15
LAPP	C4	Computing	General tasks	Site support	0.90
C. Adam-Bourdarios	C2	Computing		ADCoS shifts	0.06