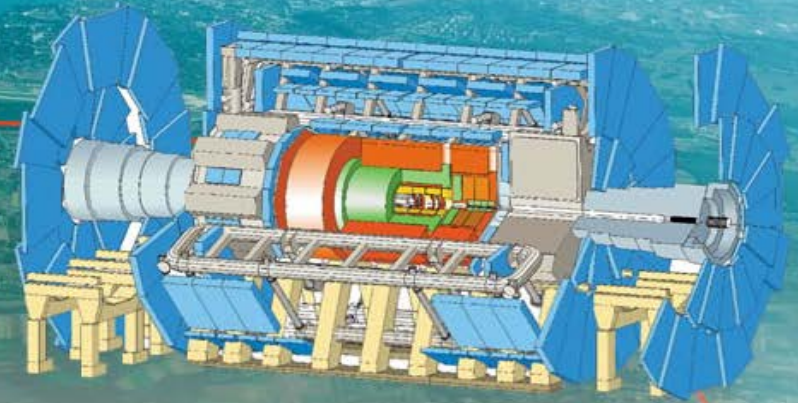


ATLAS FCPPL Projects session Introduction

Shan JIN (IHEP) / Emmanuel MONNIER (CPPM)



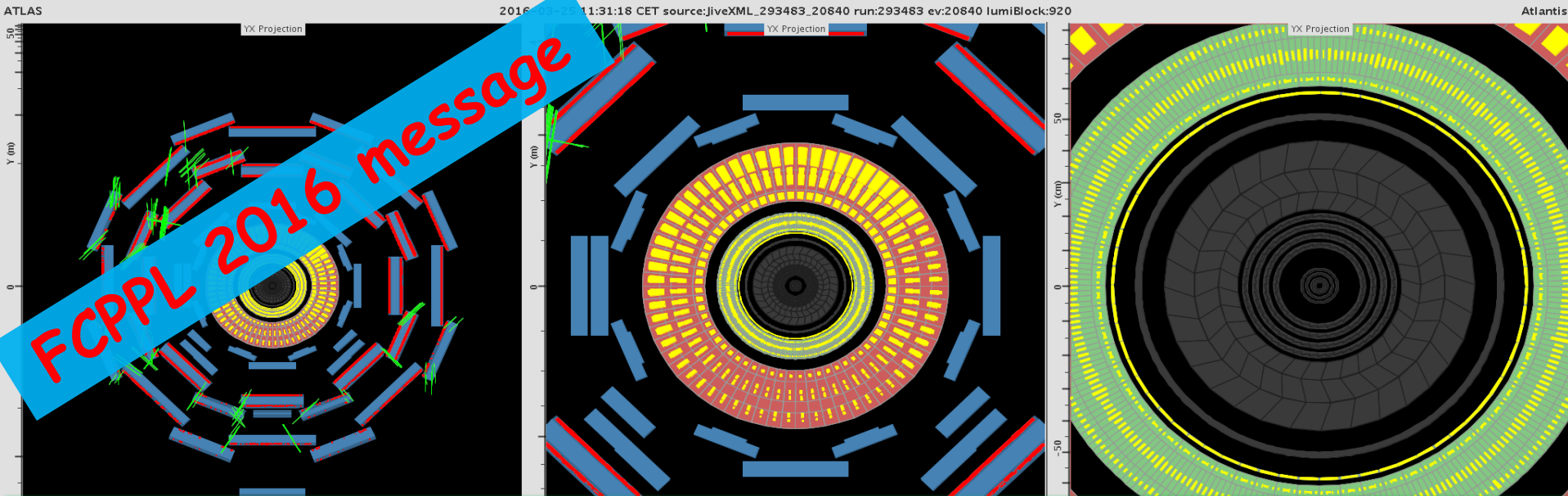
FCPPL 10th workshop
Beijing 27th March 2017

26-Mar-17

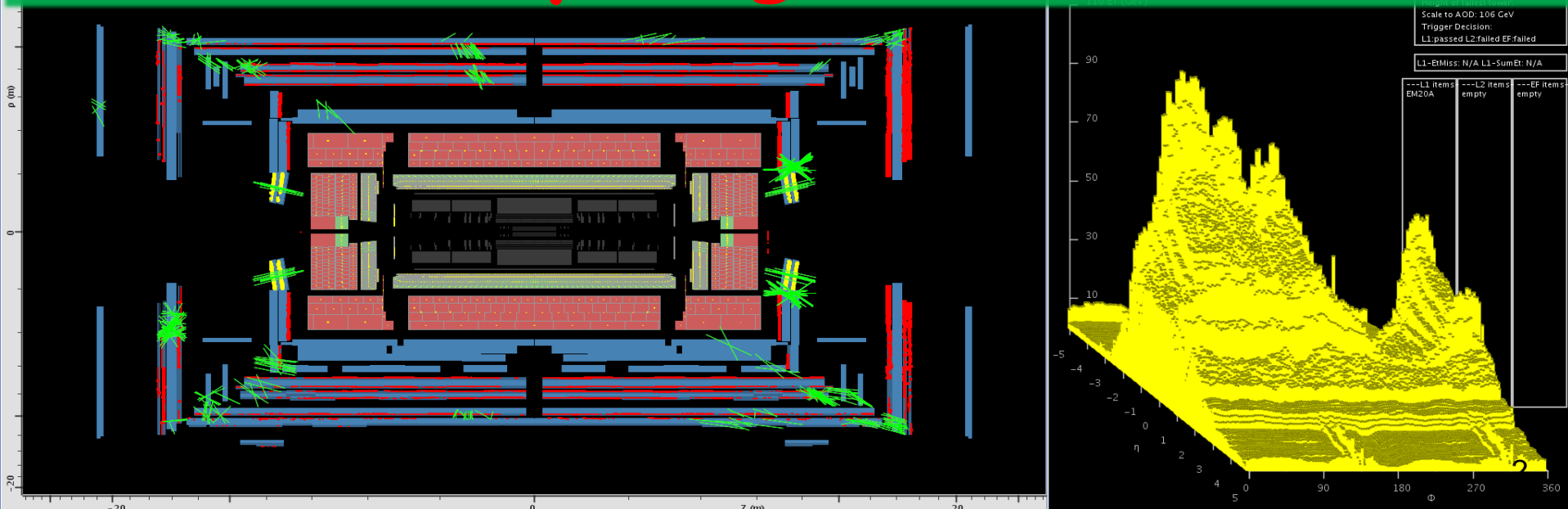
E. Monnier - FCPPL 2017



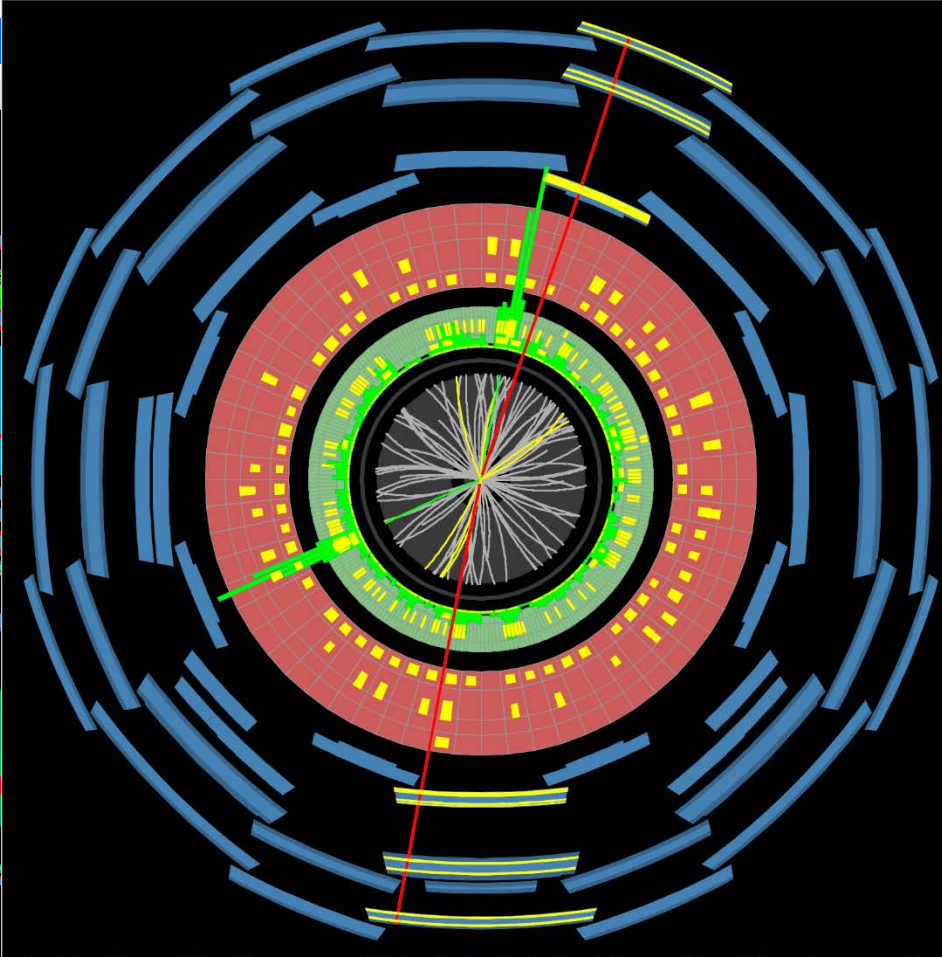
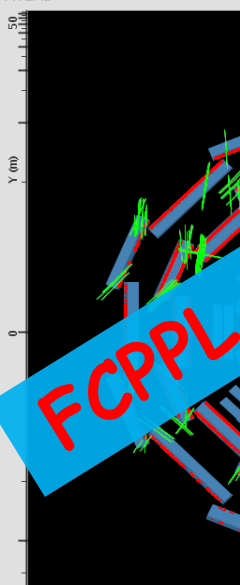
First LHC Run2 2016 beam splashes in ATLAS



ATLAS ready to go for 2016 Run2 !



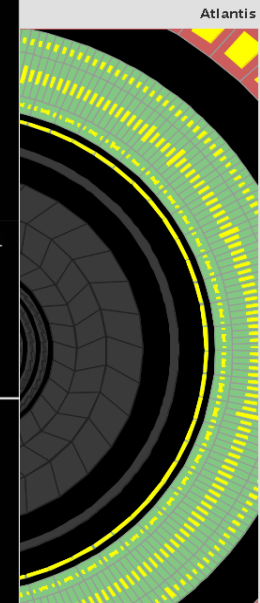
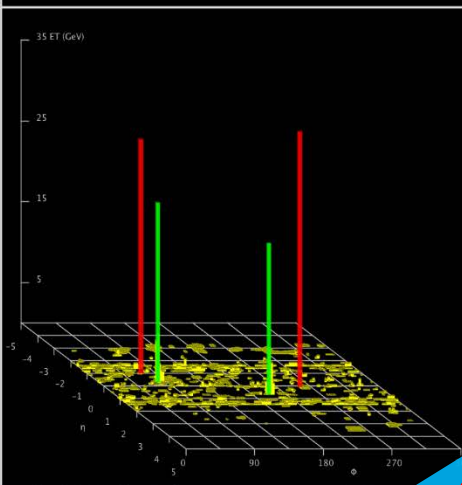
ATLAS



ATLAS
EXPERIMENT

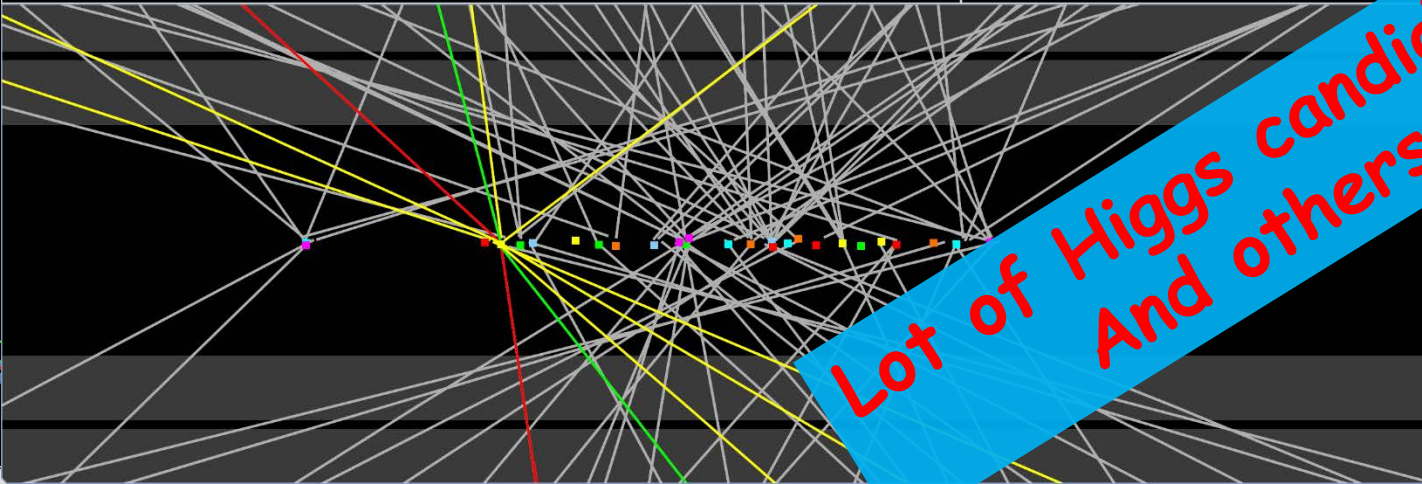
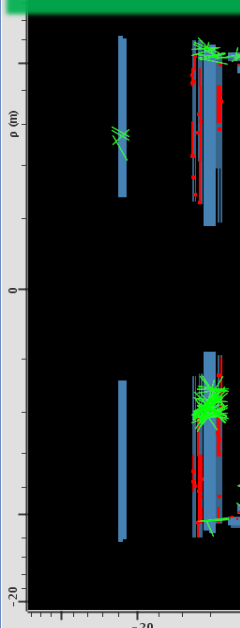
Run Number: 304431, Event Number: 2206548301

Date: 2016-07-25 05:01:07 UTC

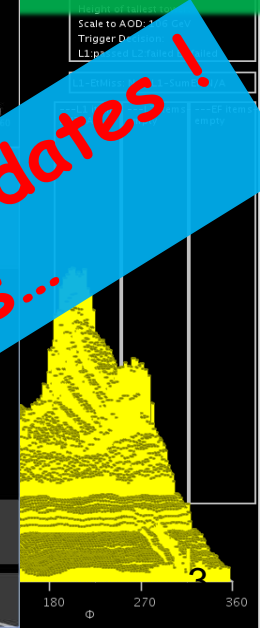


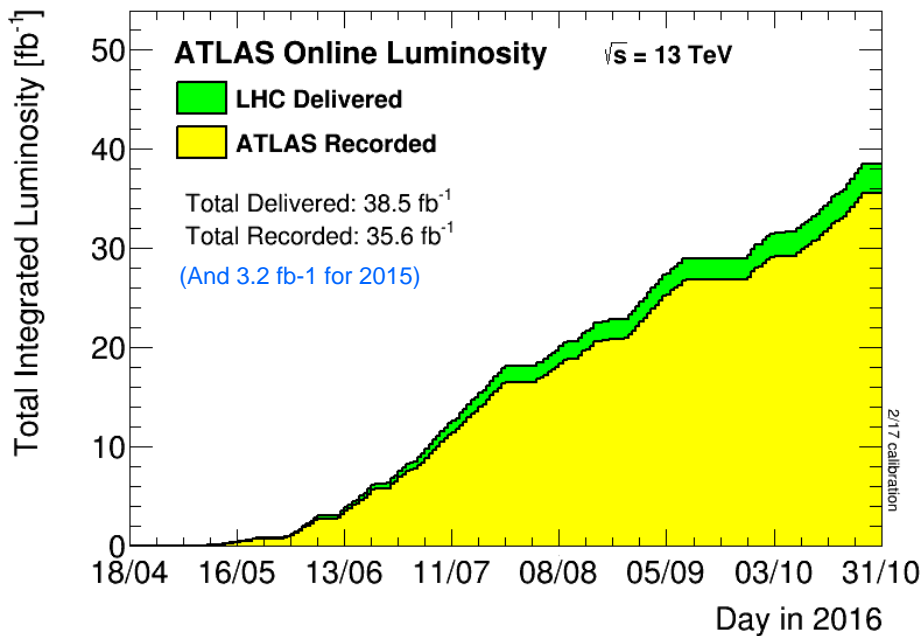
in2 !

ATL



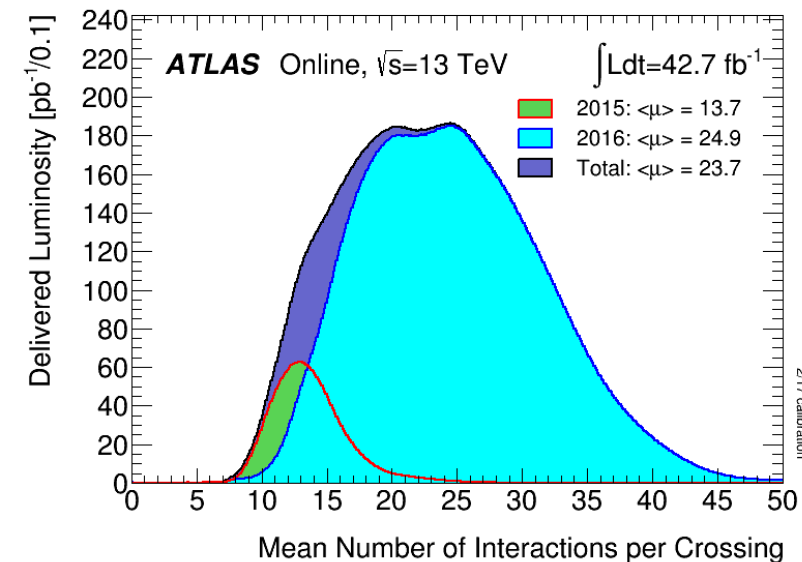
Lot of Higgs candidates!
And others...





Excellent Year 2016 !

Subdetector	Number of Channels	Approximate Operational Fraction
Pixels	92 M	98.0%
SCT Silicon Strips	6.3 M	98.6%
TRT Transition Radiation Tracker	350 k	97.2%
LAr EM Calorimeter	170 k	100%
Tile calorimeter	5200	99.0%
Hadronic endcap LAr calorimeter	5600	99.5%
Forward LAr calorimeter	3500	99.7%
LVL1 Calo trigger	7160	99.9%
LVL1 Muon RPC trigger	383 k	99.8%
LVL1 Muon TGC trigger	320 k	99.9%
MDT Muon Drift Tubes	357 k	99.7%
CSC Cathode Strip Chambers	31 k	97.7%
RPC Barrel Muon Chambers	383 k	96.6%
TGC Endcap Muon Chambers	320 k	99.6%
ALFA	10 k	99.9 %
AFP	188 k	98.8 %



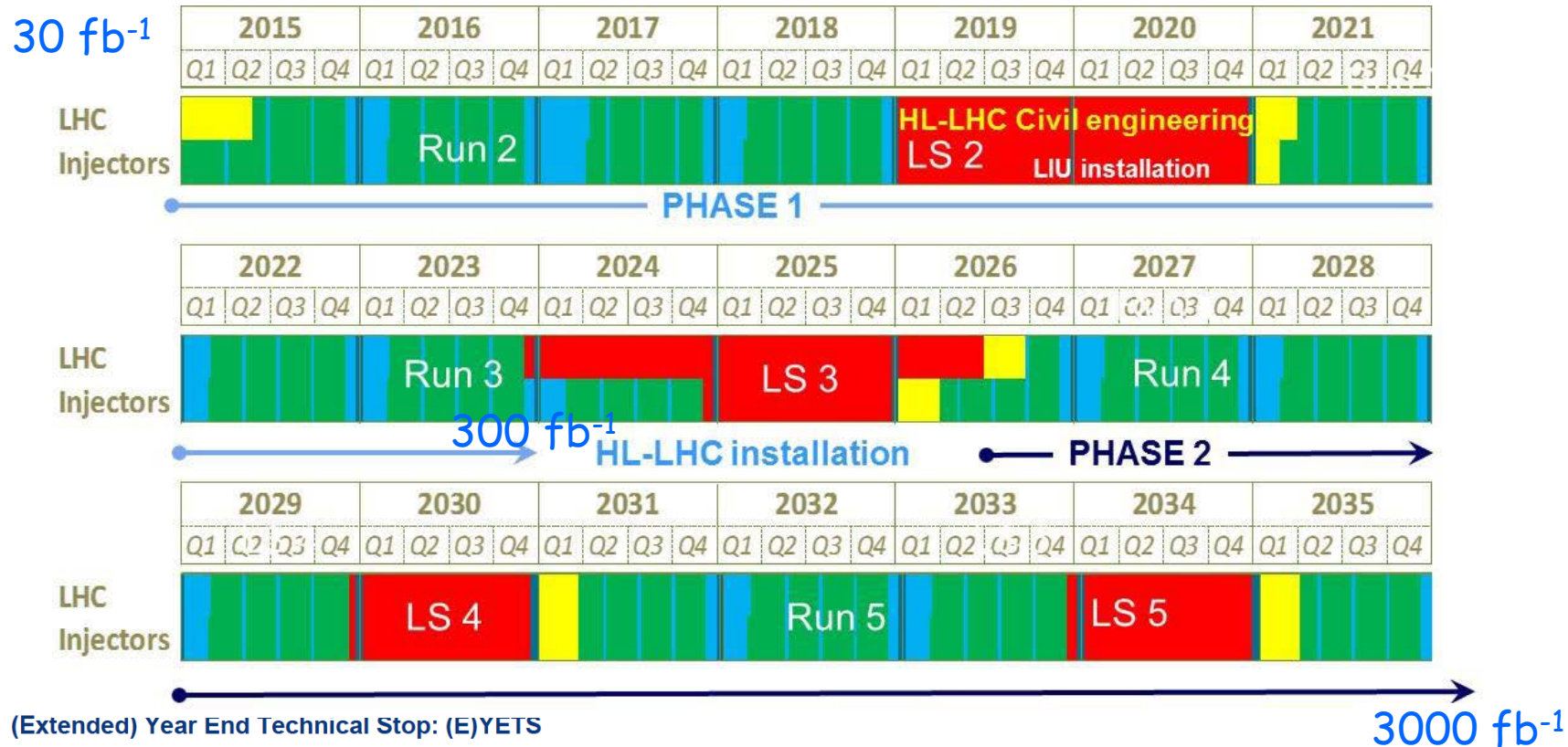
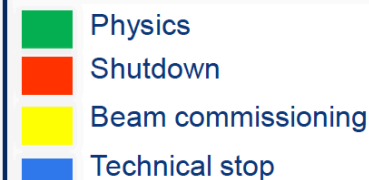
ATLAS pp 25ns run: April-October 2016

Inner Tracker			Calorimeters		Muon Spectrometer				Magnets		Trigger
Pixel	SCT	TRT	LAr	Tile	MDT	RPC	CSC	TGC	Solenoid	Toroid	L1
98.9	99.9	99.7	99.3	98.9	99.8	99.8	99.9	99.9	99.1	97.2	98.3

Good for physics: 93-95% (33.3-33.9 fb⁻¹)

Luminosity weighted relative detector uptime and good data quality efficiencies (in %) during stable beam in pp collisions with 25ns bunch spacing at $\sqrt{s}=13$ TeV between April-October 2016, corresponding to an integrated luminosity of 35.9 fb⁻¹. The toroid magnet was off for some runs, leading to a loss of 0.7 fb⁻¹. Analyses that don't require the toroid magnet can use that data.

LS2 starting in 2019 => 24 months + 3 months BC
 LS3 LHC: starting in 2023 => 30 months + 3 months BC
 Injectors: in 2024 => 13 months + 3 months BC



Phase-II overall progress

After Kevin Einsweiler (9 Dec)

Summary for Phase-2: Milestones from Sep 2015 (Nov 2016)

Milestones prepared for UCG Review in Sept 2015:

- Complete TDAQ Initial Design Review: ~~Mar 2016~~ **Nov 2016** (TDR Dec 2017)
- Complete Muon Initial Design Review: ~~Jun 2016~~ **Nov 2016** (TDR Jun 2017)
- Complete LAr Initial Design Review: ~~Sept 2016~~ **Feb 2017** (TDR Sept 2017)
- Complete Tile Initial Design Review: ~~Sept 2016~~ **Feb 2017** (TDR Sept 2017)
- ITk Milestones: Strip **TDR Dec 2016**, Pixel **TDR Dec 2017**
- Color code: **Date** = Completed or On Schedule, Date = Estimated Schedule

Following their successful Initial Design Reviews (IDRs) the TDAQ and Muon Phase-II upgrades were formally approved as ATLAS Upgrade Projects at the December EB (joining Itk), for endorsement at the CB on Friday this week

LAr and Tile Phase-II upgrades will follow later in 2017

All proceed towards TDRs by the end of the year

Phase-II overall progress

After Kevin Einsweiler (9 Dec)

Summary for Phase-2: Milestones from Sep 2015 (Nov 2016)

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- Complete Muon Initial Design Review: Jul 2016 (TDR Dec 2017)
- Complete LAr Initial Design Review: Sep 2016 (TDR Sept 2017)
- Complete Tile Initial Design Review: Sep 2016 (TDR Sept 2017)
- ITk Milestones: Sep 2016 (TDR Dec 2017)

Color Code: Date = Completed or On Schedule, Date = Estimated Schedule

FCPPL ATLAS should think on common interest for Upgrade Phase II

Following their successful Initial Design Reviews (IDRs) the TDAQ and Muon Phase-II upgrades were formally approved as ATLAS Upgrade Projects at the December EB (joining Itk), for endorsement at the CB on Friday this week

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LHC schedule 2017 (draft)
ATLAS start of run schedule

Expect Lumi up to 2×10^{34} !



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ATLAS start of run schedule

Expect Lumi up to 2×10^{34} !



Many "Run 2" data (Higgs, Susy, SM analysis...) in which FCPPL cooperation is strongly contributing.
See today's talks as well as winter conference slides and related conf notes for details of ATLAS new results.
ATLAS Upgrade ramp up now in full swing. ATLAS FCPPL need to think on opportunities to further cooperate

ACC(IHEP/NJU/SDU/USTC...)-IN2P3(CPPM/LAL/LPNHE/CC)-CEA

- Very strong cooperation program between the Atlas Chinese Cluster and CPPM, LAL, LPNHE since several years:
 - Higgs, Susy studies (through $\gamma\gamma$, WW final states and also lepton/jet/bjet/top final states such as in ttH)
(C. Diaconu, Y. Liu, H. Ren, C. Wang, W. Song talks)
 - Multi-boson studies
 - Top properties
 - Performance studies (E/gamma, B tag, Trigger, Calorimeter)
 - Silicon detector R&D (J. Liu, P. Pangaud, Thursday R&D session)
 - Numerous presentation in Atlas meetings, conferences as well as in internal, public/conf notes and publications.
 - Many senior physicists visits (France and China) with continuous cooperation work between ACC physicist and IN2P3 physicists
 - Several co-PhD thesis defended in 2016, J. Liu, and more to come in 2017: H. Ren... (Co-PhDs are an important strengthening force for the LIA)
- Strong cooperation on WLCG, IHEP/IN2P3/CEA (C. Gang talk)

ATLAS ACC-IN2P3 heavily involved in Run2 data analyses & performance studies in 2016-2017 aiming at 2015+2016 publications.

● Co-PhD :

- Y. Zhao (LAL/SDU) SDU/LAL/Eiffel funded (started 09/14)
- H. Zhang (LAL/Nanjing) CSC funded (started 09/15)
- Y. Ma (LAL/SDU) SDU/CSC funded (started 09/15)
- C. Li (LPNHE/USTC) USTC funded (started 09/15)
- R. Zhang (CPPM/USTC) CSC/USTC/FCPPL funded (09/14)
- C. Wang (CPPM/SDU) CSC Cai Yuanpei funded (09/14)
- H. Ren (CPPM/IHEP) CAS/IHEP/FCPPL funded (09/14)
- **No start of Co-Phd in fall 2016, stat fluct. But need to act !**

● K. Liu former PhD (USTC/LPNHE) **Postdoc at CPPM**

● Many former Co-PhD students now **postdoc or permanent positions**

● **Strong SLHC Silicon detector R&D cooperation program ongoing,**
J. Liu (SDU/CPPM), SDU/FCPPL/Eiffel funded, defended May 2016,
But need new PhD students & short stay scientists to strengthen it !

● **Need to strengthen manpower/funds for strong ATLAS Run 2 analysis and R&D for ATLAS upgrade and future detectors.**

谢谢！
 Merci !
 Thank
 You !

Highlights

14:00

ATLAS recent highlights talk *Xin CHEN*
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 13:30 - 13:55

CMS recent highlights talk *Junquan TAO*
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 13:55 - 14:20

ATLAS introduction *Mr. emmanuel MONNIER*
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 14:20 - 14:30

LPNHE/USTC collaboration *Prof. Yanwen LIU* 
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 14:30 - 14:50

15:00

LAL/SDU collaboration *Weimin SONG* 
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 14:50 - 15:10

Coffee break
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 15:10 - 15:30

ATLAS

CPPM/SDU collaboration: ttH analysis in multilepton at ATLAS *Chao WANG*
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 15:30 - 15:50

16:00

CPPM/IHEP collaboration: Susy searches in two same sign lepton final states *Huan REN*
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 15:50 - 16:10

CPPM/USTC collaboration: Double Charged Higgs searches *Cristinel DIACONU*
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 16:10 - 16:30

CMS introduction *Suzanne GASCON*
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 16:30 - 16:40

CMS

IPHC-Peking U collaboration *Qiang LI* 
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 16:40 - 17:00

17:00

IPNL-IHEP: H-->gamma gamma in CMS *Linda FINCO*
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 17:00 - 17:20

IPNL-IHEP Low mass H-->gamma gamma in CMS *Ms. Sijing ZHANG*
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 17:20 - 17:40

LCG

WLCG CC-IN2P3-IHEP *Dr. Gang CHEN* 
 Lecture Hall, Department Of Engineering Physics, Liuqing Building 17:40 - 18:00

18:00