



Welcome to

The 2nd

Higgs (N)NLO MC and Tools Workshop for LHC Run-2

Local organizers

ATLAS Higgs MC contacts

Daniela Rebutzi and Junichi Tanaka

ATLAS LHC x-sec WG overall contacts

Markus Schumacher and Rei Tanaka

ATLAS LHC x-sec WG working group contacts

Bruce Mellado, Michael Duehrssen and Nikolaos Rompotis



Reminder of “LHC Run 2”

Run 2 : 2015-2018 (until summer) 3.5 years
13TeV in 2015 and 14(or 13)TeV later

2015 plan


We expect

~ **1 fb⁻¹** with **50ns** bunching spacing

~**10 fb⁻¹** with **25ns** bunching spacing

in 2015. “Less pileup effect” in the latter.

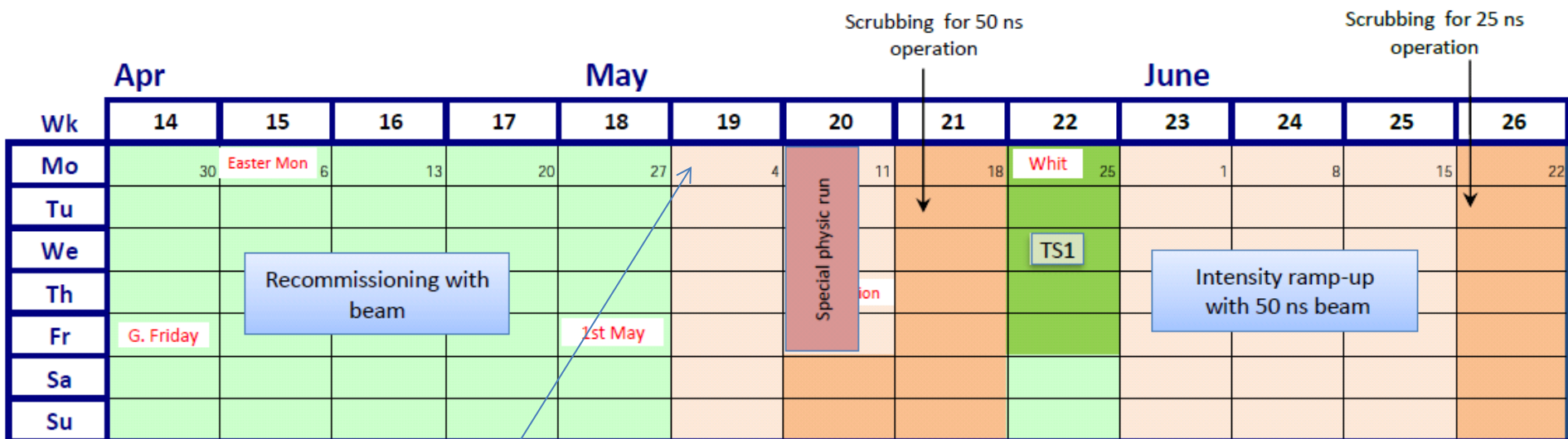
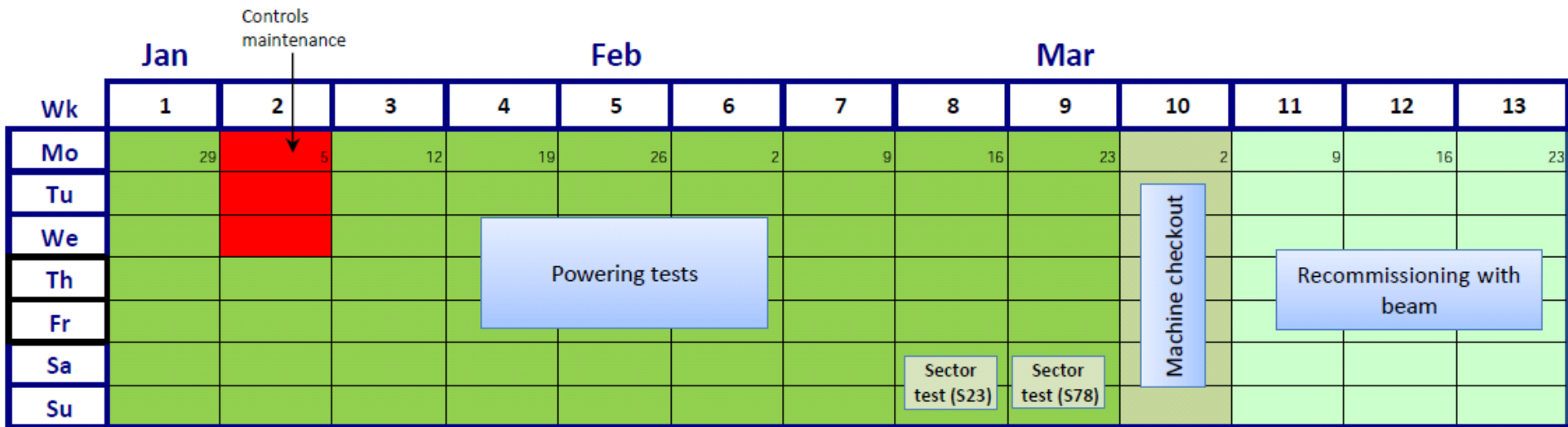
~50 inelastic scattering
per one x-ing at $10^{34}\text{cm}^{-2}\text{s}^{-1}$



The detail of 2015 is shown in the next pages.

LHC Schedule in 2015

https://espace.cern.ch/be-dep/BE/DepartmentalDocuments/BE/LHC_Schedule_2015.pdf



Physics run will start in May.

	July			Aug				Sep						
Wk	27	28	29	30	31	32	33	34	35	36	37	38	39	
Mo	29	6	13	20	27	3	10	17	24	Special physics run	31	7	14	21
Tu														
We	1	MD 1		Intensity ramp-up with 25 ns beam					TS2			MD 2		
Th												Jeune G		
Fr														
Sa												lower beta*		
Su														

	Oct			Nov				Dec					
Wk	40	41	42	43	44	45	46	47	48	49	50	51	52
Mo	28	5	12	19	26	2	9	16	23	30	7	14	21
Tu			Floating MD					Ions setup				Technical stop	
We							TS3						
Th										IONS			
Fr						MD 3							Xmas
Sa													
Su													

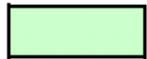
End physics
[06:00]



Technical Stop



Machine development



Recommissioning with beam



Special physics runs (indicative - schedule to be established)



Scrubbing (indicative - dates to be established)

**pp-collision will stop
at the middle of Nov.**

Purpose

Discuss on

– MC event generators for Run 2

Not only “**Search**” but also “**Precision Measurements**”

- Parameter tunings (damping factor etc)
- Systematic uncertainties (LHEv3)
- BSM Higgs generators ... etc

– MC tools for Run 2

- Exclusive categories, for example, 2jet-bin
- Interference between Higgs and other well-known SM
- Effective field theory for Higgs properties ... etc

based on what we learned from Run 1 data analysis among theorists and experimental collaborators.

7 Sessions

<https://indico.cern.ch/event/345455/other-view?view=standard>

17th

- **NLO ME+PS MC for Higgs Processes**
Bruce Mellado and Magdalena Slawinska
- **Gluon-fusion process**
Dag Gillberg and Chris Hays

18th

- **H+>=2jets, VBF, WH/ZH and VV-scattering**
Elisabetta Pianori and Paolo Francavilla
- **ttH and tH process**
Stefan Guindon and Elizaveta Shabalina
- **WW/ZZ/ $\gamma\gamma$ process**
Florian Bernlochner, Fabio Cerutti and Olivier Arnaez

19th

- **Higgs Properties**
Michael Duhrssen and Kirill Prokofiev
- **BSM Higgs**
Nikolaos Rompotis, Xiaohu Sun and Jacob Sekula



Keep to your allocated time!
Have useful discussion!

Practical information

- 3 days workshop: 17th-19th Dec
- All the sessions will be held in **this room**:
222-R-001 “Filtration Plant”

Workshop dinner



- 20:00 on this Thursday (**Tomorrow!!!**, 18th Dec)
- “Café restaurant de Mategnin”
(5 minutes by car from CERN)
- 50CHF/person

See our agenda page to get a map.
Please contact us if you need a car seat.

Please pay 50CHF to us (Daniela/Junichi/Rei) during the breaks!!!

Thank you for being here!

