

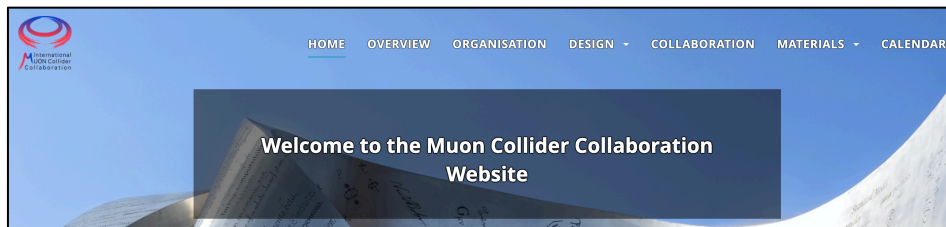
International
UON Collider
Collaboration

Optics repository for muons

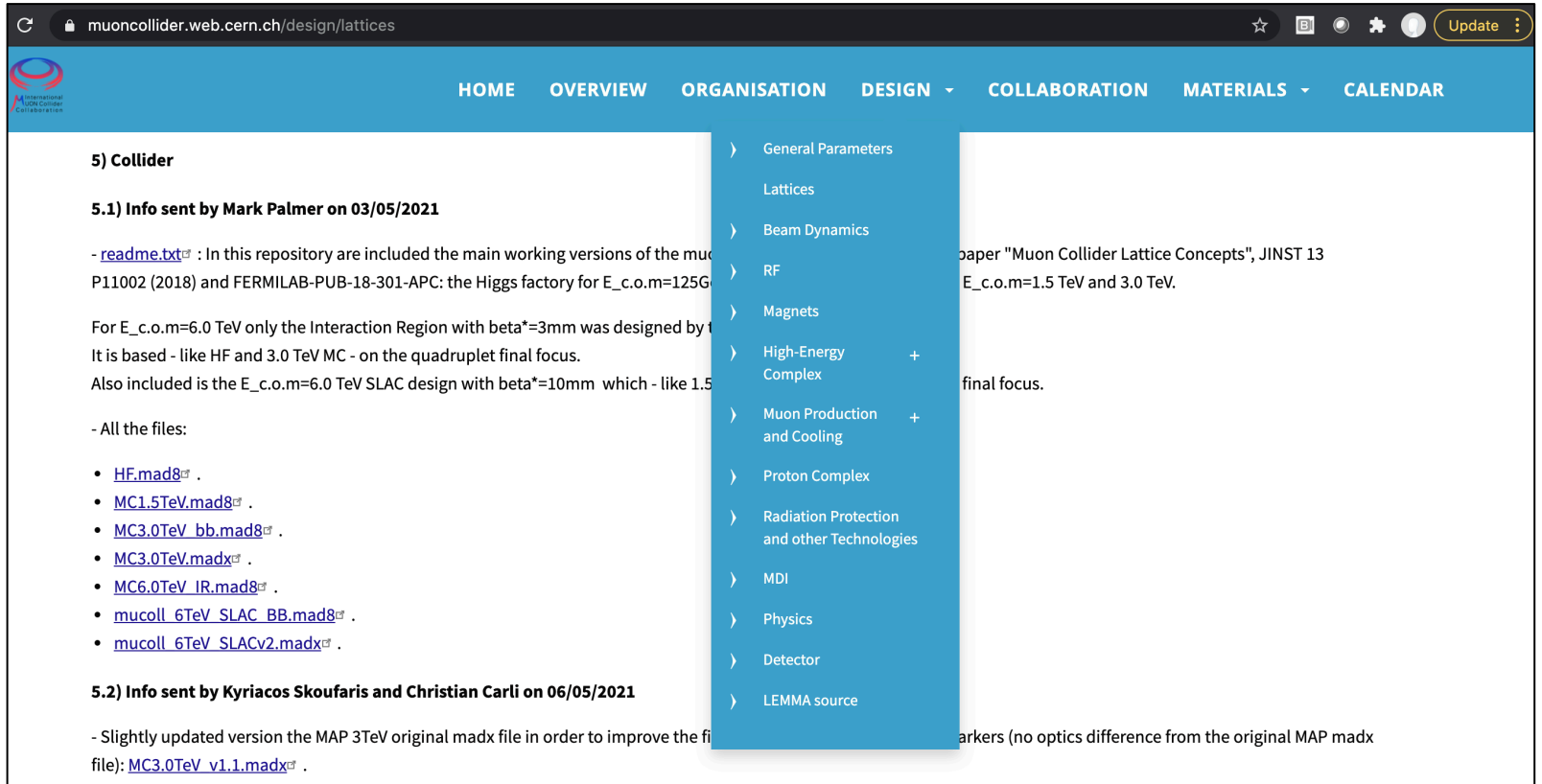
E. Métral and D. Schulte



<https://muoncollider.web.cern.ch/>



Current situation



muoncollider.web.cern.ch/design/lattices

HOME OVERVIEW ORGANISATION DESIGN ▾ COLLABORATION MATERIALS ▾ CALENDAR

5) Collider

5.1) Info sent by Mark Palmer on 03/05/2021

- [readme.txt](#) : In this repository are included the main working versions of the muon collider lattice design for the paper "Muon Collider Lattice Concepts", JINST 13 P11002 (2018) and FERMI-PUB-18-301-APC: the Higgs factory for $E_{c.o.m}=125$ GeV. For $E_{c.o.m}=6.0$ TeV only the Interaction Region with $\beta^*=3$ mm was designed by the collaboration. It is based - like HF and 3.0 TeV MC - on the quadruplet final focus. Also included is the $E_{c.o.m}=6.0$ TeV SLAC design with $\beta^*=10$ mm which - like 1.5 TeV MC - is based on the doublet final focus.

- All the files:

- [HF.mad8](#) .
- [MC1.5TeV.mad8](#) .
- [MC3.0TeV_bb.mad8](#) .
- [MC3.0TeV.madx](#) .
- [MC6.0TeV_IR.mad8](#) .
- [muocoll_6TeV_SLAC_BB.mad8](#) .
- [muocoll_6TeV_SLACv2.madx](#) .

5.2) Info sent by Kyriacos Skoufaris and Christian Carli on 06/05/2021

- Slightly updated version the MAP 3TeV original madx file in order to improve the final focus (no optics difference from the original MAP madx file): [MC3.0TeV_v1.1.madx](#) .

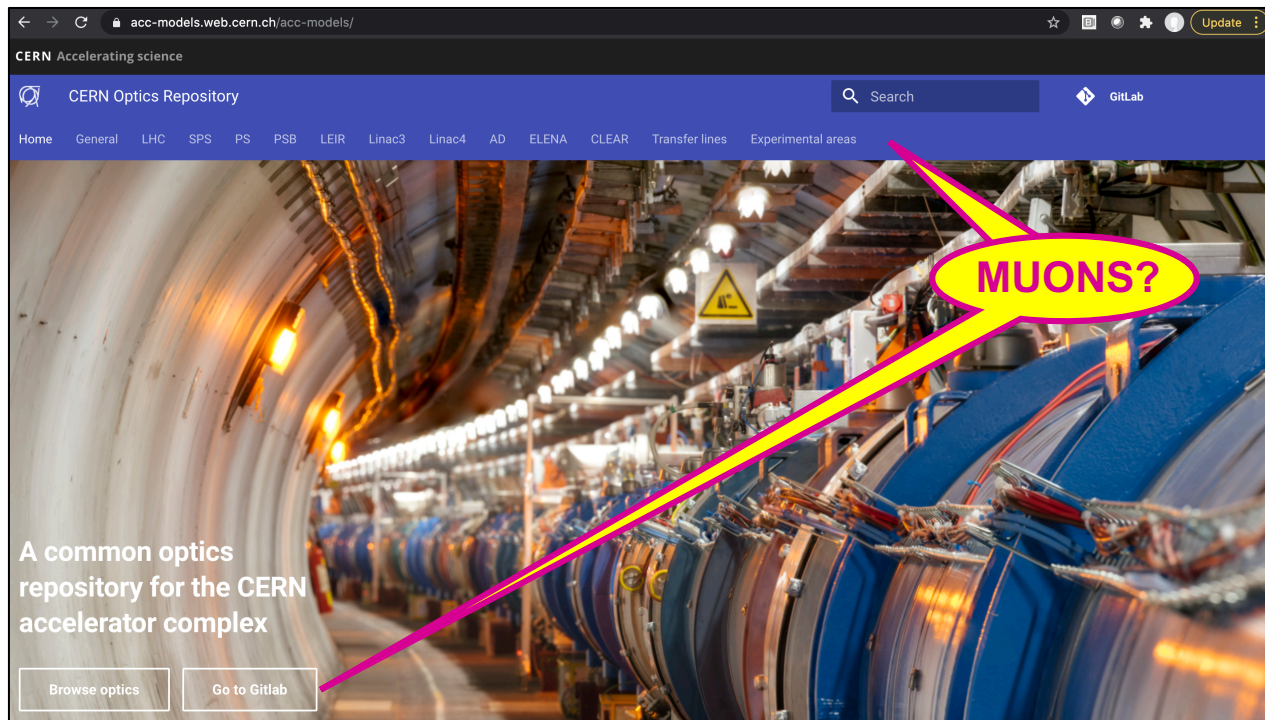
General Parameters
Lattices
Beam Dynamics
RF
Magnets
High-Energy Complex +
Muon Production and Cooling +
Proton Complex
Radiation Protection and other Technologies
MDI
Physics
Detector
LEMMMA source

Current situation

- ◆ Some files are being recuperated from MAP (Muon Accelerator Program in the US: <https://map.fnal.gov/>) and serve as starting points for further development => Important to correctly acknowledge all the work done before by our US colleagues + Keep track of the current and future progress

Proposal

- ◆ Would it be possible to use the CERN versioning (Gitlab) optics repository for the international muon collider study?

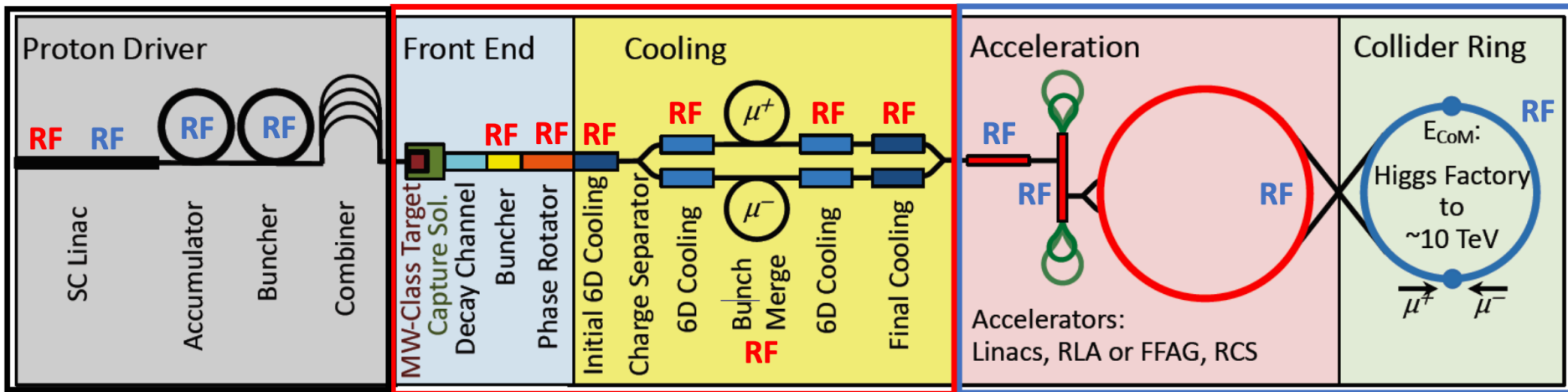


=> I could be the contact / responsible person for all the (many) accelerators

Proposal

Muon capture and cooling

Acceleration and collider rings



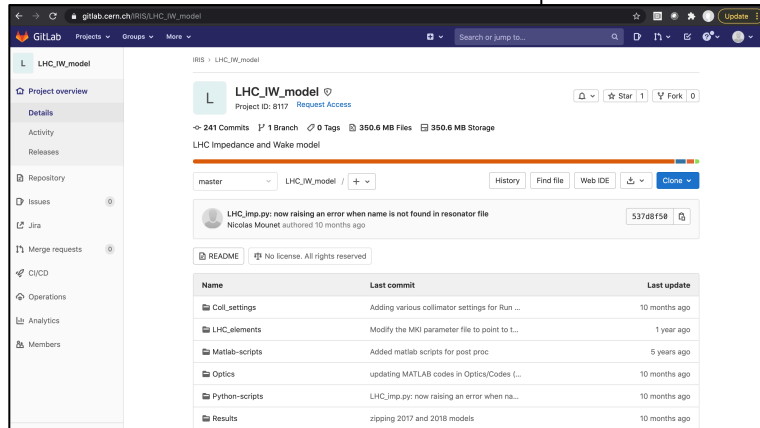
Fyi: Similar thing to be done with impedances

- ◆ We would like also to use the CERN GitLab repository as currently done for the CERN machines

Summary page of impedance of machines

Impedance repository for CERN machines:

- [HL-LHC](#)
 - [2019](#)
 - [2020](#)
- [LEIR](#)
 - [2018](#)
 - [2020](#)
- [LHC](#)
 - [2015](#)
 - [2016](#)
 - [2017](#)
 - [2018](#)
 - [2020](#)
- [PS](#)
 - [2016](#)
 - [2018](#)
 - [2020](#)
- [PSB](#)
 - [2018](#)
 - [2020](#)
- [SPS](#)
 - [2015](#)
 - [2017](#)
 - [2018](#)
 - [2020](#)



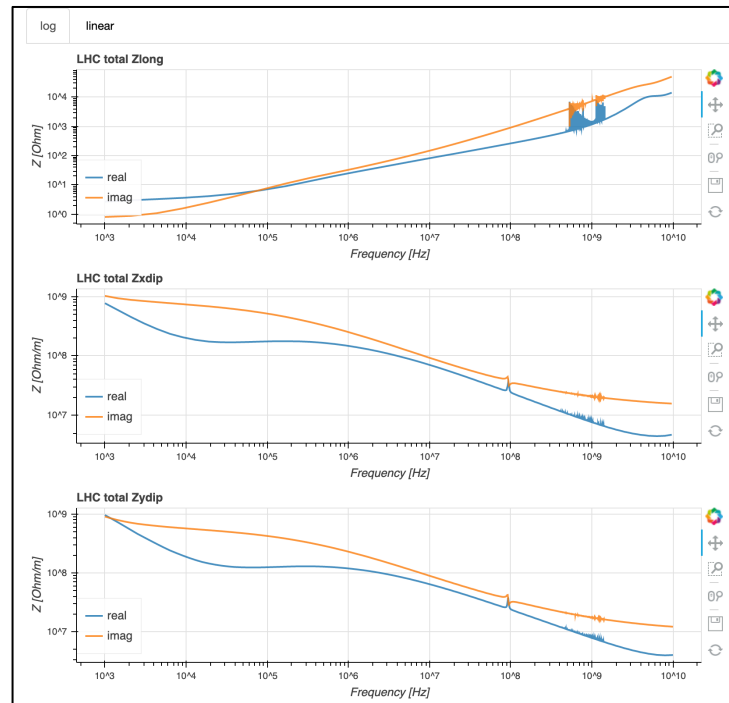
GitLab repository page for `LHC_IW_model`. The page shows project details, a commit history table, and a recent commit message.

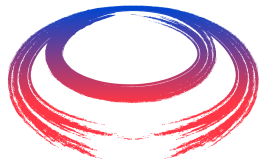
Name	Last commit	Last update
Col_settings	Adding various collimator settings for Run ...	10 months ago
LHC.elements	Modify the MKI parameter file to point to L...	1 year ago
Matlab-scripts	Added matlab scripts for post proc	5 years ago
Optics	updating MATLAB codes in Optics/Codes (...)	10 months ago
Python-scripts	LHC_imp.py: now raising an error when na...	10 months ago
Results	zipping 2017 and 2018 models	10 months ago

Recent commit: `LHC_imp.py: now raising an error when name is not found in resonator file` by Nicolas Mounet, authored 10 months ago.

[Elias Métral](#), [Nicolo Biancacci](#), [Carlo Zannini](#), [Sebastien Joly](#), [Nicolas Mounet](#) or [Benoit Salvant](#)

CERN BE/ABP-HSC





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***Many thanks in
advance for your
help!***