

first thoughts on
MD Priorities for 2012

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2011 MD Notes

BI MD studies on August 25th 2011, D. Belohrad et al, CERN-ATS-Note-2011-130 MD

End-of-fill study on collimator tight settings , R. Assmann et al, CERN-ATS-Note-2011-125 MD

Optics measurement and correction close to the half integer resonance, R. Calaga et al, CERN-ATS-Note-2011-124 MD. - 2011.

Results of long range beam-beam studies and observations during operation in the LHC, Alemany et al, CERN-ATS-Note-2011-120 MD

IR1 and IR5 aperture at 3.5 TeV, C. Alabau Pons,, CERN-ATS-Note-2011-110 MD

Beam parameters observations during a high pile-up collisions fill, G. Trad et al, CERN-ATS-Note-2011-105 MD

Longitudinal Oscillations with Batch Injection in the LHC, T. Argyropoulos et al, CERN-ATS-Note-2011-031 MD

Dependence of single beam lifetime on bunch length, P. Baudrenghien et al, CERN-ATS-Note-2011-083 MD

Tight collimator settings with $\beta^* = 1.0$ m, R. Assmann et al, CERN-ATS-Note-2011-079 MD.

R2E-related MD: slow controlled losses for RadMon/BLM cross-checks , M. Calviani et al, CERN-ATS-Note-2011-070 MD

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Quench Margin at Injection, W. Bartmann et al, CERN-ATS-Note-2011-067 MD

MKI UFOs at Injection, T. Baer et al, CERN-ATS-Note-2011-065 MD

MD on Injection Quality – Longitudinal and Transverse Parameters , L. Drosdal et al, CERN-ATS-Note-2011-063 MD

Improving LHC Collimator Setup Efficiency at 3.5 TeV, Assmann et al, CERN-ATS-Note-2011-062 MD

IR3 combined cleaning test at 3.5 TeV, R. Assmann et al, CERN-ATS-Note-2011-061 MD.

LHC Transvers Profile Monitors studies (MD on May 6th, 2011), E. Bravin et al, CERN-ATS-Note-2011-049 MD

Transverse coupled-bunch instability rise times in the LHC at injection and top energy, N. Mounet et al, CERN-ATS-Note-2011-035 MD

Head-on beam-beam tune shifts with high brightness beams in the LHC, R. Alemany et al, CERN-ATS-Note-2011-029 MD

Test of luminosity levelling with separated collisions , R. Alemany et al, CERN-ATS-Note-2011-028 MD

50 and 75 ns operation in the LHC: Vacuum and Cryogenics observations, G. Arduini et al, CERN-ATS-Note-2011-046 MD

BPM Offset Determination by Sinusoidal Quadrupole K-modulation, T. Baer et al, CERN-ATS-Note-2011-043 MD

The Achromatic Telescopic Squeezing (ATS) MD part I, S. Fartoukh et al, CERN-ATS-Note-2011-033 MD

Summary of MD on nominal collimator settings, R. Assmann et al, CERN-ATS-Note-2011-036 MD

Un-squeeze to 90 m, H. Burkhardt et al, CERN-ATS-Note-2011-032 MD

Collimator losses in the DS of IR7 and quench test at 3.5 TeV, R. Assmann et al, CERN-ATS-Note-2011-042 MD

Studies of longitudinal single bunch stability, T. Argyropoulos et al, CERN-ATS-Note-2011-041 MD

TI8 shielding studies and angular alignment of TDI and TCDQ, W. Bartmann et al, CERN-ATS-Note-2011-040 MD

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LHC Transvers Profile Monitor (TPM), (2011), E. Bravin et al, CERN-ATS-Note-2011-049 MD
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All done for 2011???

- Establish reliable nominal injection. Injection limitations (TL stability). Improvements (Q20).
- 2808 bunches of 25ns at injection: $2808 \times 1.2e11$
- Ramp 1 batch, 288b (25ns) for peak current within $3 \mu\text{s}$ \rightarrow demonstrate 200 kW klystron power. Ramp as many batches as possible.
- Understand longitudinal impedance in LHC. Advance voltage modulation and blow-up. Test longitudinal damper.

- Understand beam-beam emittance growth due to transverse noise.
- Flat beams with standard optics as an option to increase luminosity in 2012 and reach $5e34$ lumi after LS1, before HiLumi upgrade.
- Understand LR beam-beam limit for 25ns.
- Large Piwinski Angle test.

- ATS optics: <40 cm β^* , pile-up of 100, ...
Collimation for $\beta^*=40$ cm and flat beams.
- Non-linearities: What do we really need for upgrade specifications?
- Chromatic limits in LHC and collimation/MP:
When do we need an ATS optics?
- Collimator setup 9 times faster (with 9 Hz). Test of 7 TeV collimation settings \rightarrow ultimate efficiency.
- Optics: Establish a β^* of 500m.

- Additional data for UFO's at MKI's. Highest priority: ramp as many 25ns bunches as possible and observe.
- Experimental benchmark on 7 TeV quench limits: Quench test on C14R2 at 4 TeV.
- Noise properties of ADT with FB on and off. Emittance growth. Optimization of ADT in ramp.
- Compatibility tune and ADT: Residual tune signal in damper signal. ADT Q/Q' diagnostics compatibility.

- Understand transverse impedance limits of the LHC and limitations in octupole and ADT stabilization.
- Understand beam heating effects. Done?
- Limitations in BI. Lessons for improvements in LS1.
- Automatic K modulation for beta*.

- RF for proton-lead MD.
- Understand Pb intensity and luminosity limitations and mitigation (orbit bumps).

- Concept of Start-of-Fill MD's?