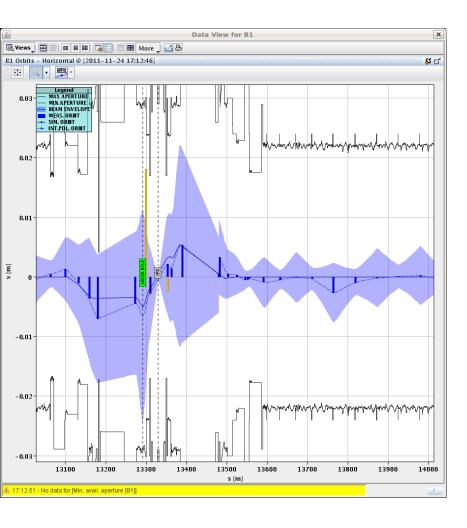
# Heavy ion MD results and requests for 2012

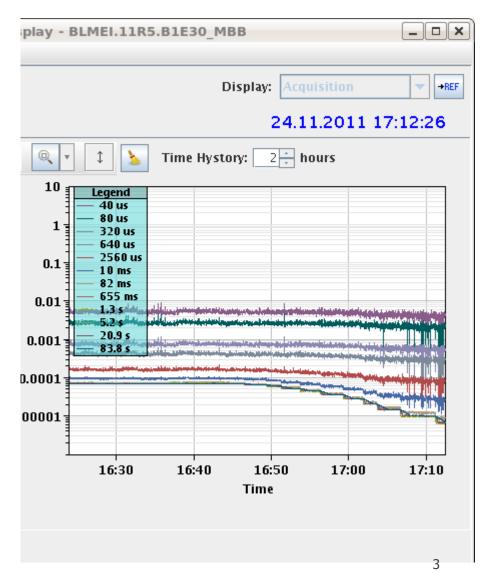
## MD results from 2011 Heavy ion run

- Proton-lead feasibility test (only one on "MD time")
  - Injection, ramp, rephasing (cogging) with different revolution frequencies
  - 2<sup>nd</sup> part of MD lost (more bunches, collisions)
  - Reported at LSWG 8/11/2011
- ALICE polarity reversal
  - Pass through small long-range separations
  - Important for future physics conditions
- BFPP mitigation
  - Bump technique applied successfully
- Pb collimation quench test
  - No quench but quite successful
- Much data on emittance, luminosity evolution, etc.

## **BFPP mitigation with orbit bump**

# 12 sigma envelopes from online model





## 6/12/2011 - quench test on physics time

- 09:00 15:30 : quench test 3 attempts no quench.
- Attempt no.1:
  - 1.8×10<sup>11</sup> charges / beam, ~20 bunches.
  - Rapid 1/3 order resonance crossing beam2 H plane. Beam dump on BLM thresholds.
  - Loss on 10 ms int. window of monitor BLMQI.09L7.B2I10\_MQ.
    This monitor had its master thresholds increased RS > 80 ms.

#### Attempt no. 2:

- Reverted to initial master threshold on BLMQI.09L7.B2I10\_MQ (and another monitor), but set MF to 1.
- 3.4×10¹¹ charges / beam, ~37 bunches.
- Rapid 1/3 order resonance crossing beam2 H plane. Beam dump on BLM thresholds at Q19 (not modified) on 82 ms RS.

## **Quench test (continued)**

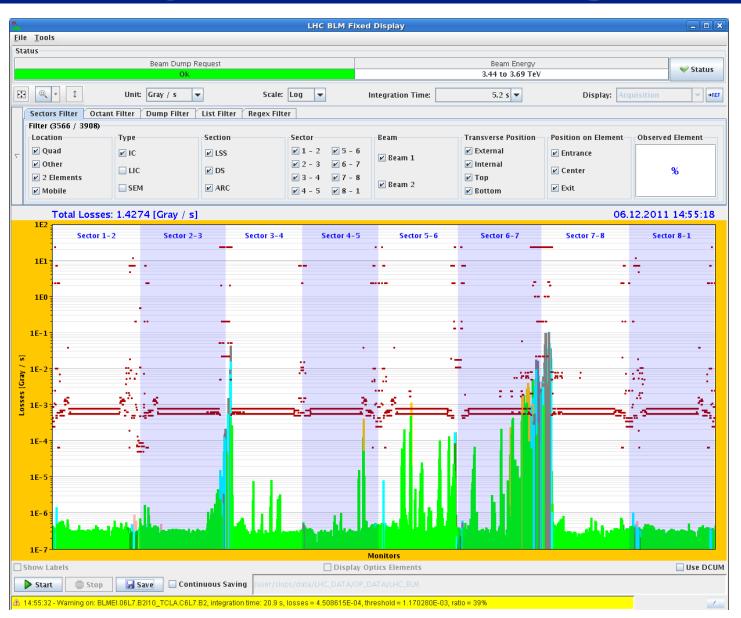
#### Attempt no. 3:

- MF set to 0.3 for 26 arc monitors (cells 11L7, 19L7, 29L7, 24R5).
- 3.2×10<sup>11</sup> charges / beam, ~37 bunches. RF M1B2 tripped.
- Slow resonance approach on for B2 H. Lost most of the beam, but no dump.
- B1H dumped on BLMs during fast resonance crossing.

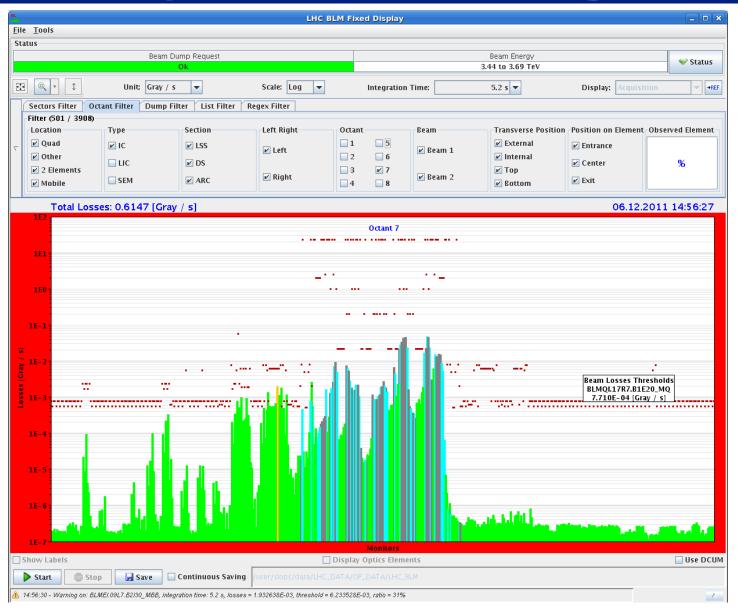
#### Comments:

- No quench during all these exercises.
- For fill3, beam2 shortly lost the cryo start in the matching section 67 due to increased temperature (2.7K from 1.9K) in the missing dipole. Limit is 2.15K.
- Otherwise cryo temperature increase at the 20mK level at the Q9.

## Attempt no. 3 — slow crossing B2H



## Attempt no. 3 - slow crossing B2H



# **Quench test summary**

Test	Beam	Loss rate	Dump Location	Dump RS	Dump/ Quench limit
Fast	2	2×10 <sup>10</sup> /75 ms	Q9	10 ms	~1.5
Fast	2	2.5×10 <sup>10</sup> /100 ms	Q19	82 ms	~2
Slow	2	$5.4 \times 10^{10}$ / s	Q9	-	~1
Fast	1	2.7×10 <sup>10</sup> /500 ms	Q11	82 ms	To be analyzed

## Requests for 2012, preliminary

- Continue p-Pb feasibility
  - As soon as possible Week 33 or floating?
  - Crucial to plan physics programme
    - Experiments need to plan for luminosity
- Pb collimation quench test (no MD request yet)
  - Go further, better conditions (BLMs, ADT, ...)
- Pb collimation, reduce local energy deposition
  - Extend BFPP technique to IR7, IR3, several bumps, know locations, signs for isotopes
  - New idea, needs study
- Proton collimation, reduce local energy deposition
  - Similar technique may work for protons
  - New idea, needs study