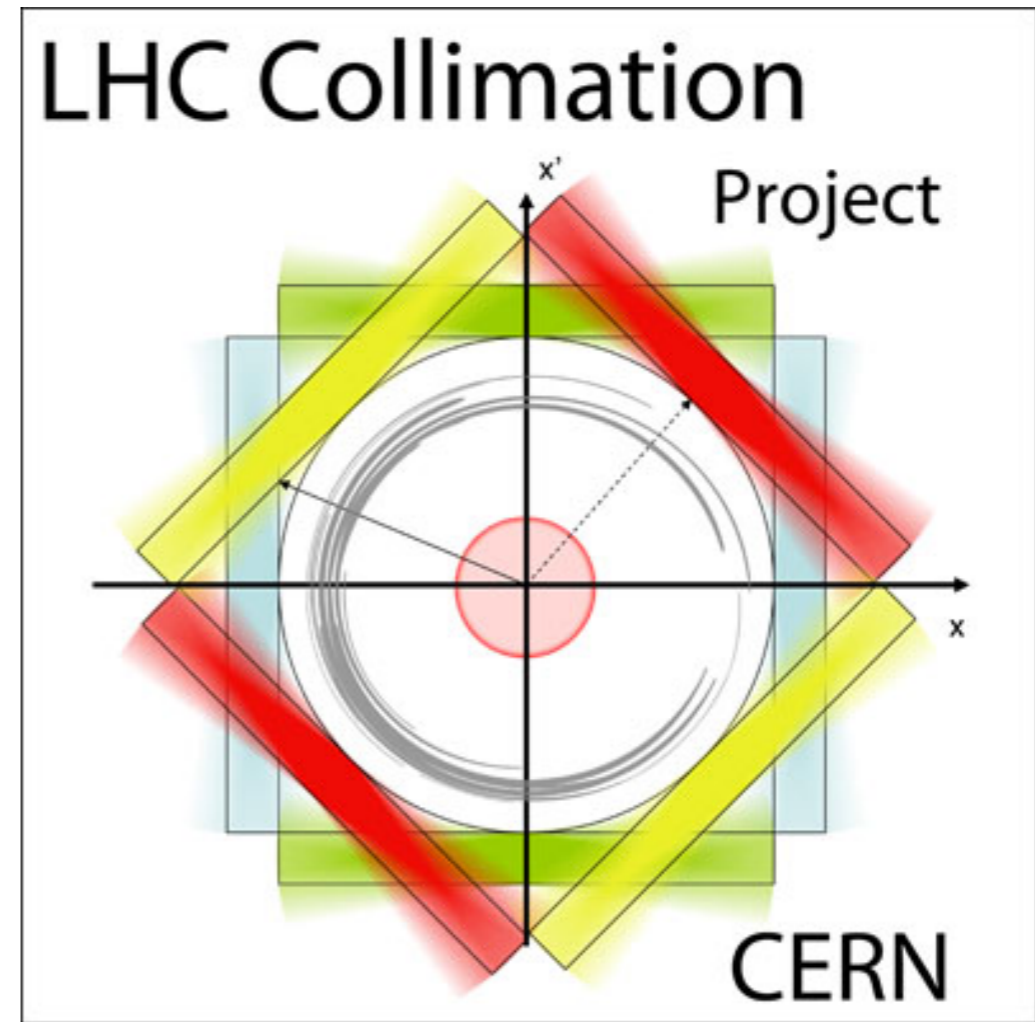


# MD: Collimation and Fast Losses

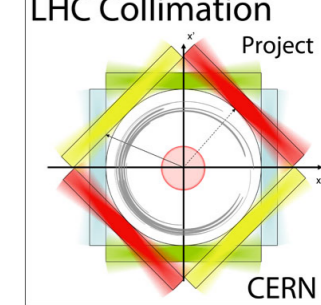


B. Salvachua, R.W.Assmann, R. Bruce, F. Burkart,  
M. Cauchi, D. Deboy, L. Lari, S. Redaelli,  
G.Valentino, D.Wollmann

**Impedance:** N. Mounet, E. Metral, B. Salvant



# MD: Collimation and Fast Losses



- **Collimation:**

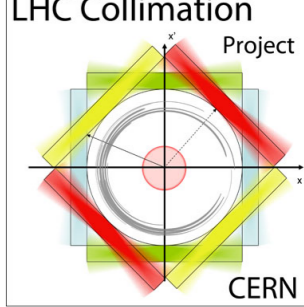
- ▶ **Nominal Settings:** Test of 7TeV settings (in mm)
- ▶ **Impedance:** Tune shift study with tight collimator settings with transverse feedback off, tune feedback off, and high enough octuple current to stabilize the beam, move IR3 collimators back and forth, measuring the corresponding tune shift. Same operation with IR7.

- **Fast losses with ADT:**

- ▶ BLMs are used to measure loss patterns and instantaneous beam lifetime. It has recently being used to measure the change of beam lifetime with the change of tune.
- ▶ The aim is to study measurements with diamond detectors for bunch-by-bunch measurements. We would like to distinguish losses from the bunched and un-bunched particles with gated acquisitions in the gaps between bunch trains.



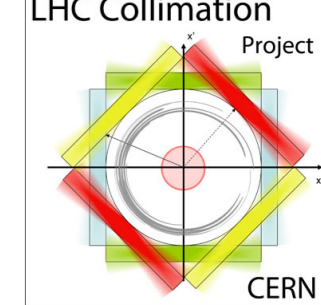
# Requirements



- Time: 10 hours
  - ▶ ~ 6 hours for collimation/impedance
  - ▶ ~4hours for fast ADT losses (see A.Priebe)
- Beam 1 & 2
- Top energy, 4000GeV
- Flat Top
- 1 nominal bunch per beam (  $1.15e11$  )



# Procedure



1. Establish TIGHT settings for Beam 1 and Beam 2
2. Go to 7TeV settings in IR7 (in mm)

<b>Sigmas</b>	<b>7TeV</b>	<b>4TeV Current Settings</b>	<b>4TeV Equivalent to 7TeV in mm</b>
Primary	5.7	4.3	4.3
Secondary	6.7	6.3	5.1
Absorbers	10	8.3	7.6

3. Move several subset of collimators IR7-IR3 in/out for **impedance** measurements
4. Change octuple settings
5. Loss maps for 7TeV settings (in mm) with ADT and Q
6. Parasitic: Losses acquired with BLM and diamond detector for bunch-by-bunch study (**Fast losses**)