

# 1. Quality assurance and system checkout procedure

## 1.1. Quality assurance:

*For each individual detector (18+ spare detectors for Barrel and 6+spare for Forward):*

**Test 1** : Verification of dimensions (flat and curved for Barrel)

**Test 2** : Gain and energy resolution measurements over the whole detector area

**Test 3** : Efficiency and spatial resolution measurements with cosmic run

*After integration of the whole barrel and forward on the final mechanical structure:*

**Test 4** : Survey of Barrel and Forward detectors

**Test 5** : Cosmic run with full Barrel detector in nominal configuration (with full electronics chain)

**Test 6** : Cosmic run with full Forward detector in horizontal configuration (with full electronics chain)

*After integration of Micromegas with SVT, full check-out of MSVT:*

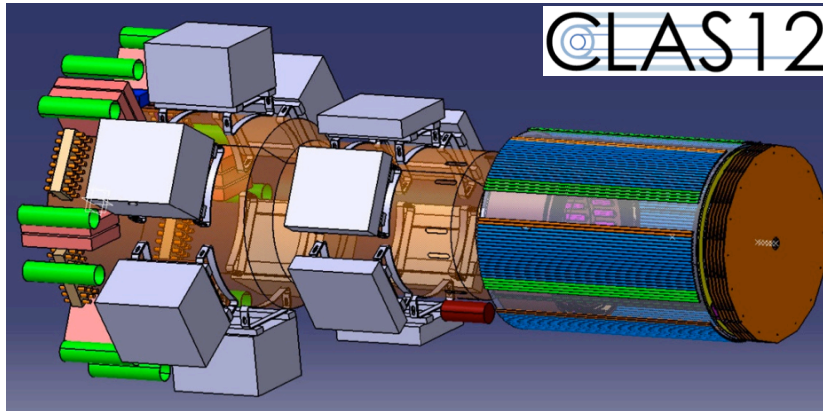
**Test 7** : Alignment and Survey of MM versus SVT

**Test 8** : Cosmic rays with both tracking systems, cross-talk, noise measurements, temperature measurements

*After integration of full Central Detector :*

**Test 9** : Cosmic rays with all systems on (Magnet on/off)

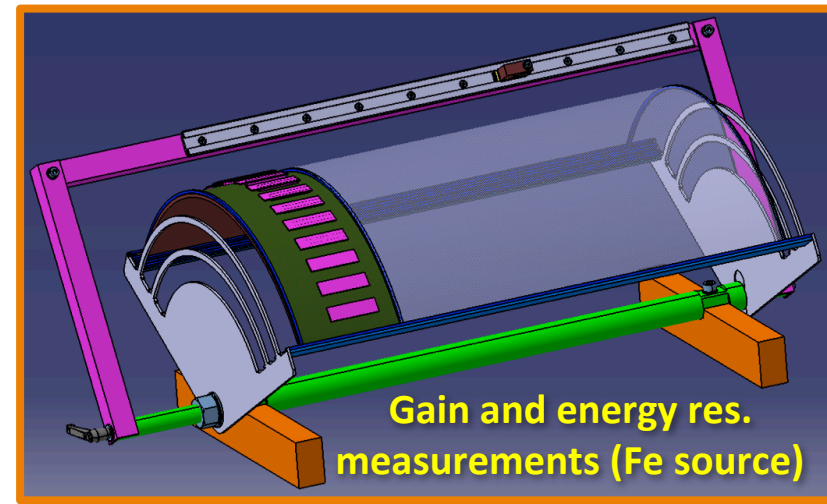
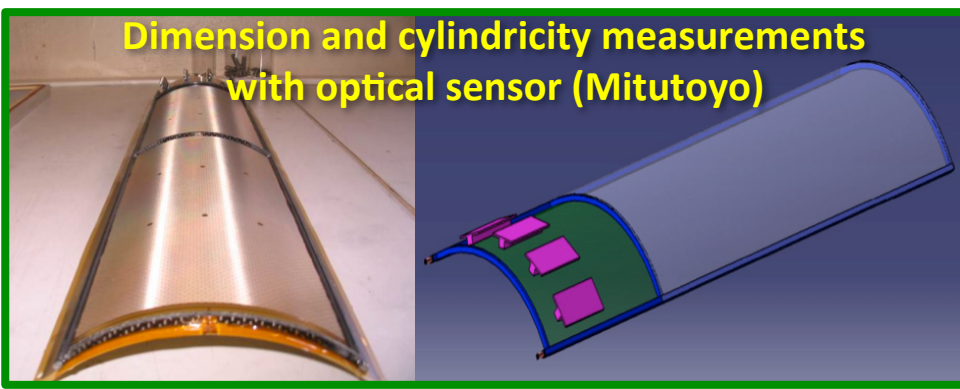
# Micromegas Tracker quality insurance (pre-commissioning)



**Test 1:** Verification of *dimensions* (flat and curved)

**Test 2:** *Gain* and *energy resolution* measurements

**Test 3:** *Efficiency* and *spatial resolution* measurements



## 1.2. System Checkout

1. Checkout of Front-End electronics
2. Checkout of the High-Voltage system and distribution
3. Checkout of the Low-Voltage System
4. Checkout of DAQ and Trigger
5. Checkout of gas system
6. Checkout of safety system (interlock LV/HV/cooling/gas/magnet quench)
7. Make sure 4<sup>th</sup> layer of SVT is removed before installing MVT ;)

## 2. Commissioning without beam

### 2.1. Special runs

1. Pedestal run
2. DREAM diagnostics run

### 2.2. Cosmic ray runs

1. Cosmic run w/ solenoid off
2. Cosmic run w/ solenoid @  $0.5 \cdot B_{\max}$
3. Cosmic run w/ solenoid @  $B_{\max}$

### 3. Commissioning with beam

1. Geometry/tracking run : thin target, maybe lower luminosity (2-3 h/run)
2. Geometry/tracking run w/  $B=0$  : thin target, lower luminosity (2-3 h/run)
3. Gain adjustment run : regular data taking, but HV adjustments during the run  
(2-3 h/run)