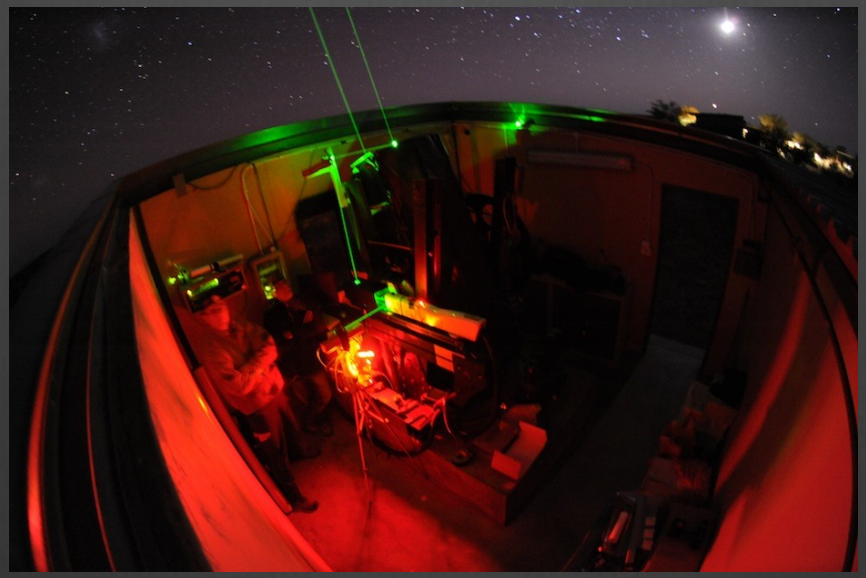
Update on the LUPM Raman Lidar



J.Bregeon / G. Vasileiadis
CNRS/IN2P3/LUPM

Concept

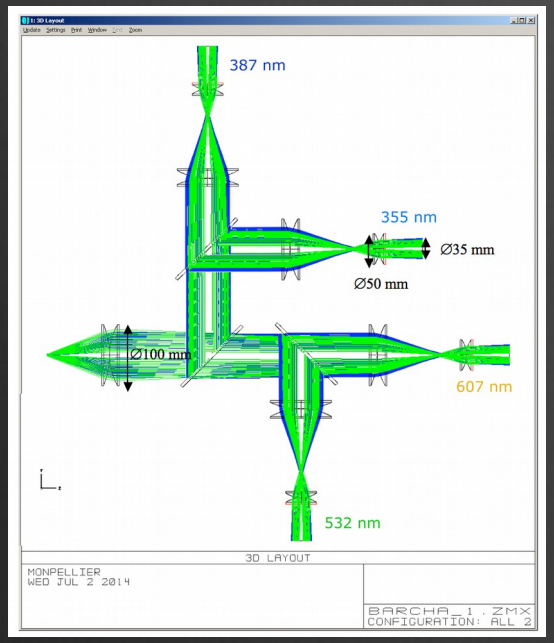
- Based on a completely rebuilt CLUE telescope
- Re-built by a group of 4 (1ph+3 ITA) persons
  - Manpower issues : DAQ expert to be hired late 2016
- An up to now 220k€ financed project (U.Montpellier)
  - Missing a relatively modest sum to conclude
    - should be provided by LUPM/IN2P3

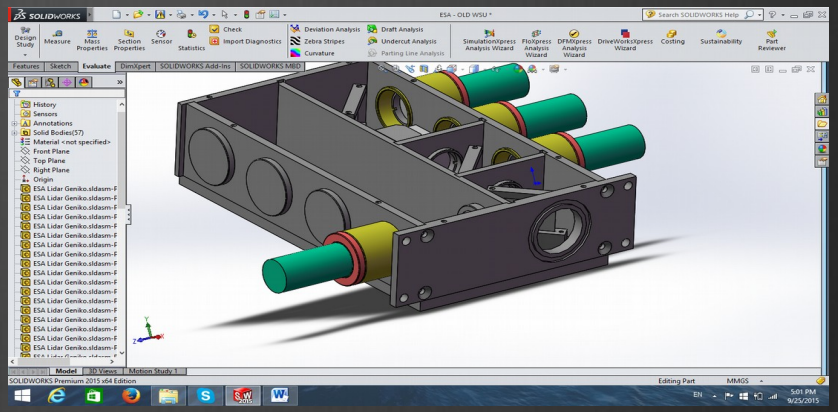
Actions till now (I)

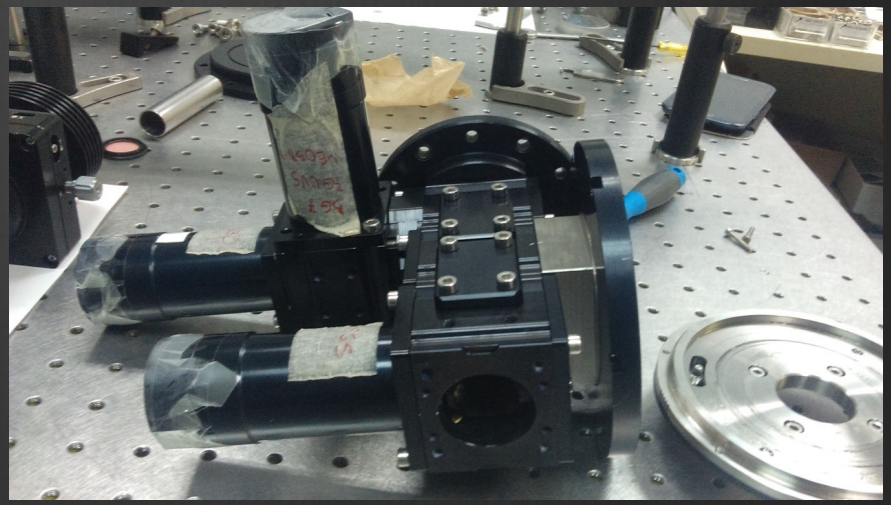
- Rebuilt telescope mechanics
- Rebuilt Container
- Rebuilt Automation electronics
  - Panasonic Industrial
- New Mil spec Laser
  - Quantel CFR-400
    - Maintenance done at Quantel in March 2016 (~4k euros !)
- New DAQ
  - LICEL- 4 channel
- Fully automated alignment system
  - Raymetrics/Newport
- Laser mount assembly
  - Raymetrics (free)

Actions till now (II)

- New 4 wavelength Raman Spectrometer
  - Collaborative issued, custom made by Raymetrics Co.
  - Test scheduled at LUPM in 2016





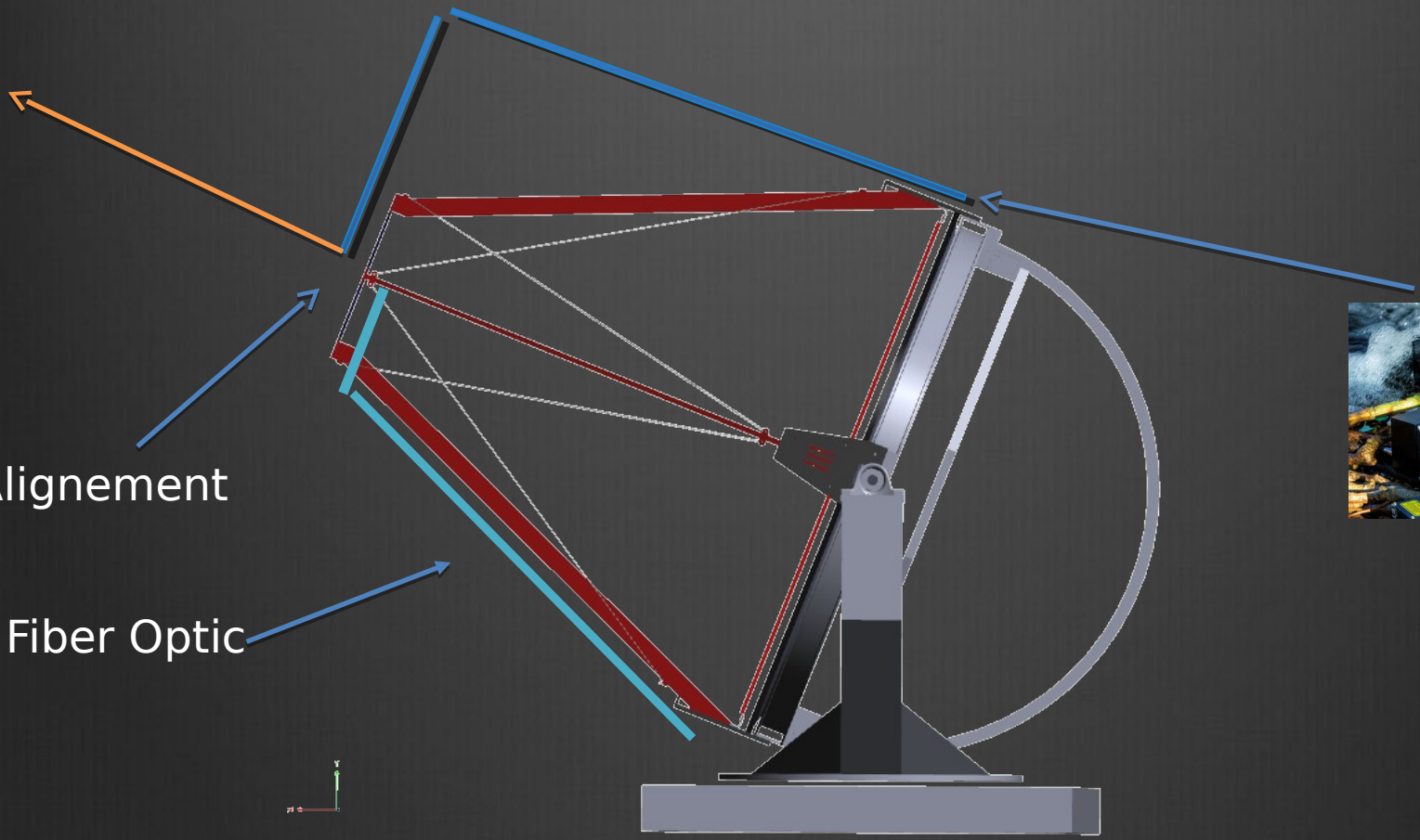


raymetrics
lidar systems

Actions till now (III)

- Fiber based readout under consideration
  - Rigidity tests of telescope focal point not good enough for fiber
  - Danger of defocalization
  - Bending radius of fiber + movement deteriorate QE
  - Tests are been held at Raymetrics and Poly.School.Athenes
- Endpoint idea
  - Install Angle Profile UV-Q at FP
    - transmission performance ?
  - Mount spectrometer at the back of the mirror
  - No tilt on Fiber
  - Simplified design
  - Under study at Raymetrics/LopTek

Laser & Fiber mounting



Plans 2016-2017 (I)

- By the end of 2016
  - Finalize mechanical integration issues
    - Financial constraints
    - Conclude on the bench tests
    - DAQ, Automation, Laser Control
  - Start integrated all components
  - Preliminary technical tests at LUPM
    - Permission to use Laser at LUPM asked in March
      - Appointment on June 28th (next week) at the airport !
    - Laser mounting mandatory
    - Fiber mounting less critical but correlated to Laser mounting
      - Mechanical design of this part is now our priority
  - Schedule complete tests on an appropriate site

Plans 2016-2017 (II)

- Proposal under discussion within CTA Lidarists
  - Transport LUMP Raman Lidar on the CTA North site 1st semester of 2017
  - In parallel tests with the Magic Elastic Lidar & Arcade Lidar
  - “Help” validate atmosphere in conjunction with the first LST prototype tests
  - Raymetrics and the Lidar Dept at the Polytech.Athenes will help on data evaluation

Backup

What we will try to measure more precisely