



# Laboratori & Facilities

## O.A.Capodimonte - Laboratorio TESTA

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2022 June 22

# Capodimonte Lab. TESTA - Il team



Pietro Schipani  
since 1994



Francesco Perrotta  
since 1996



Giulio Capasso  
since 2000



Laurent Marty  
since 2001



Giacomo Basile  
since 2021



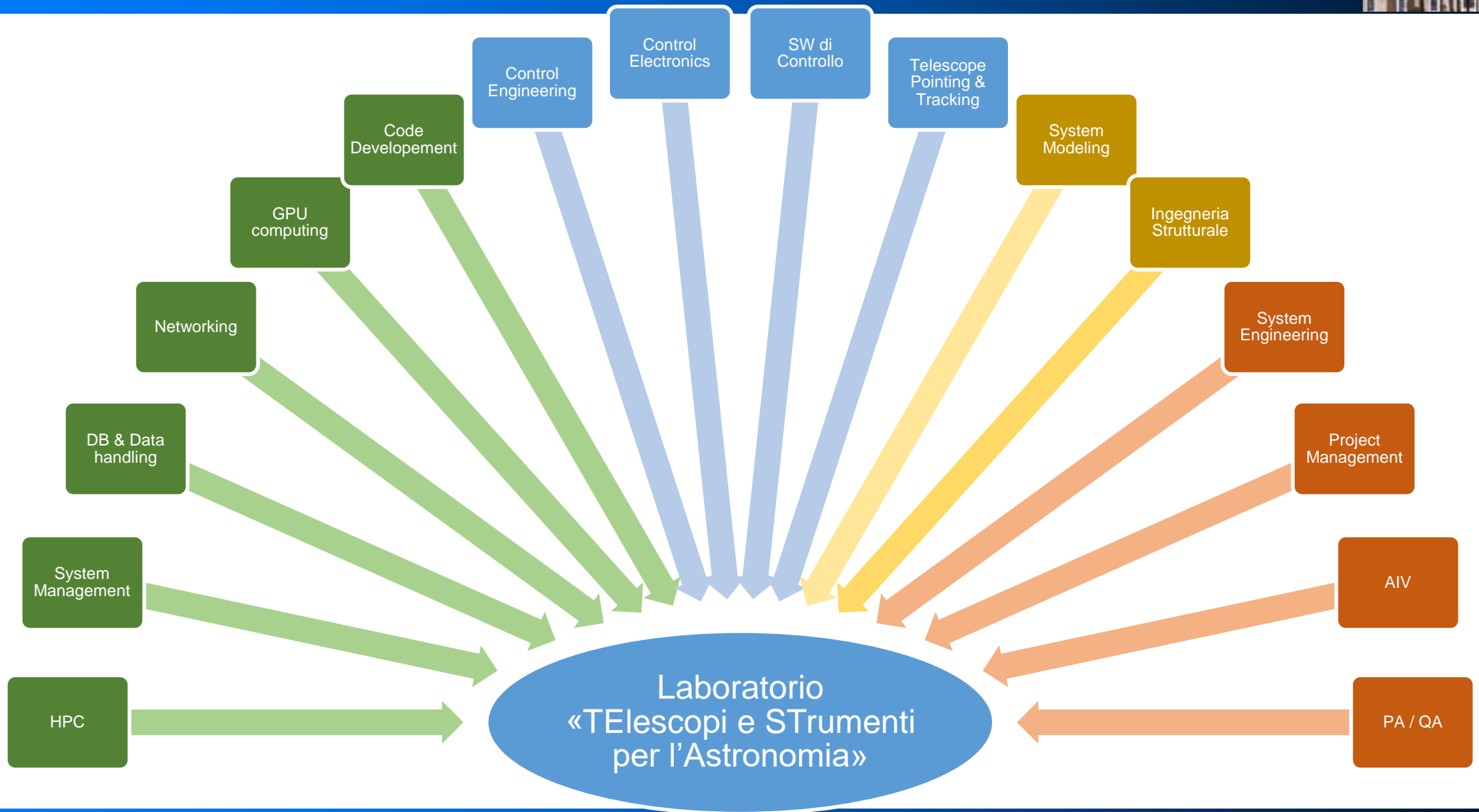
Mirko Colapietro  
since 2017



Salvatore Savarese  
since 2013



Sergio D'Orsi  
since 2004



# Lab. TESTA - Past works

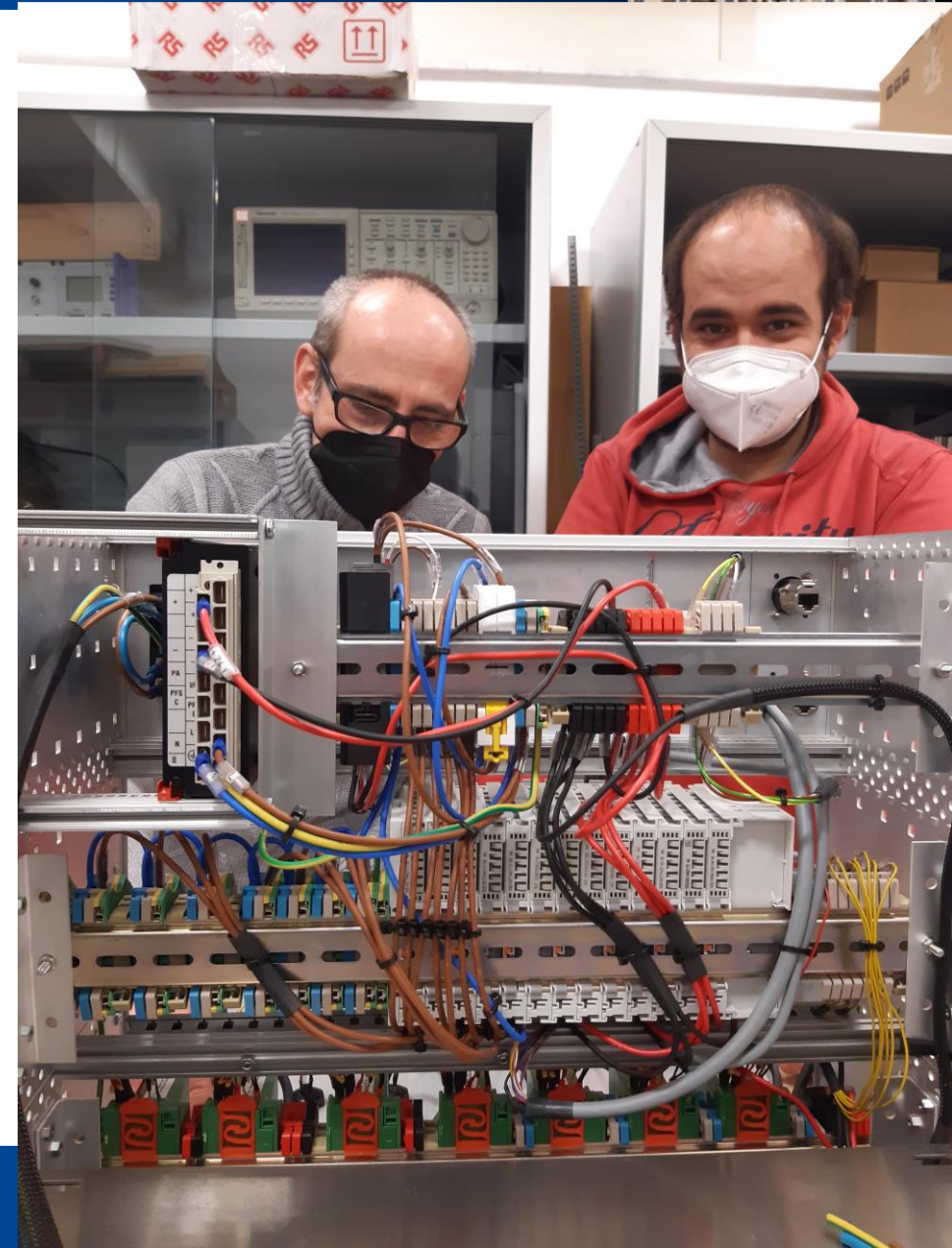
## TNG, VIMOS, VST





## SOXS

- ❑ Control Electronics
- ❑ Calibration Unit (CBX) testing & validation





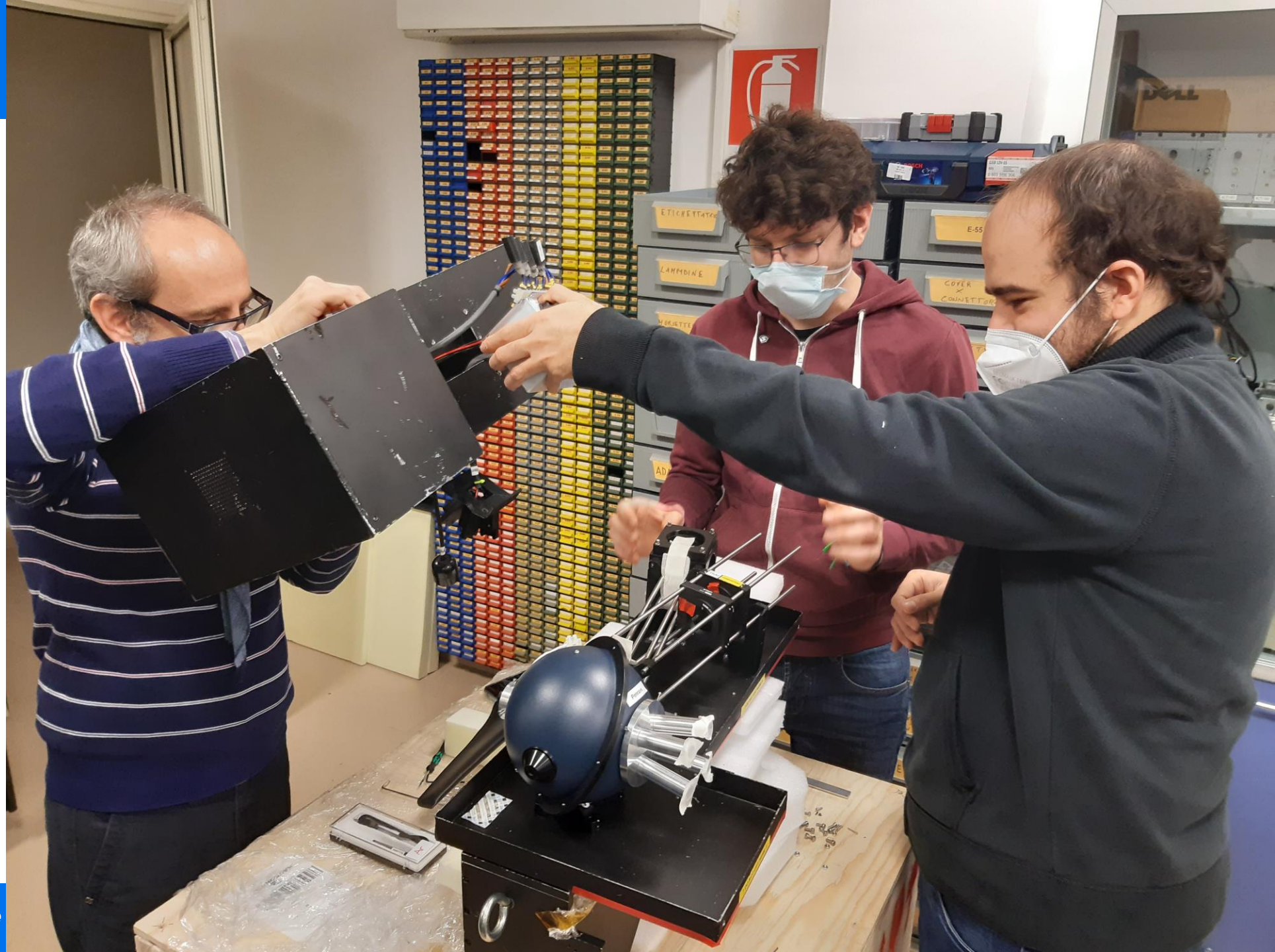
## SOXS

- ❑ CBX testing & validation



## SOXS

- ❑ CBX testing & validation



## Future works

- ❑ MAVIS - Elettronica di controllo del modulo A.O.
- ❑ Polarimetro VST
- ❑ ... and many others



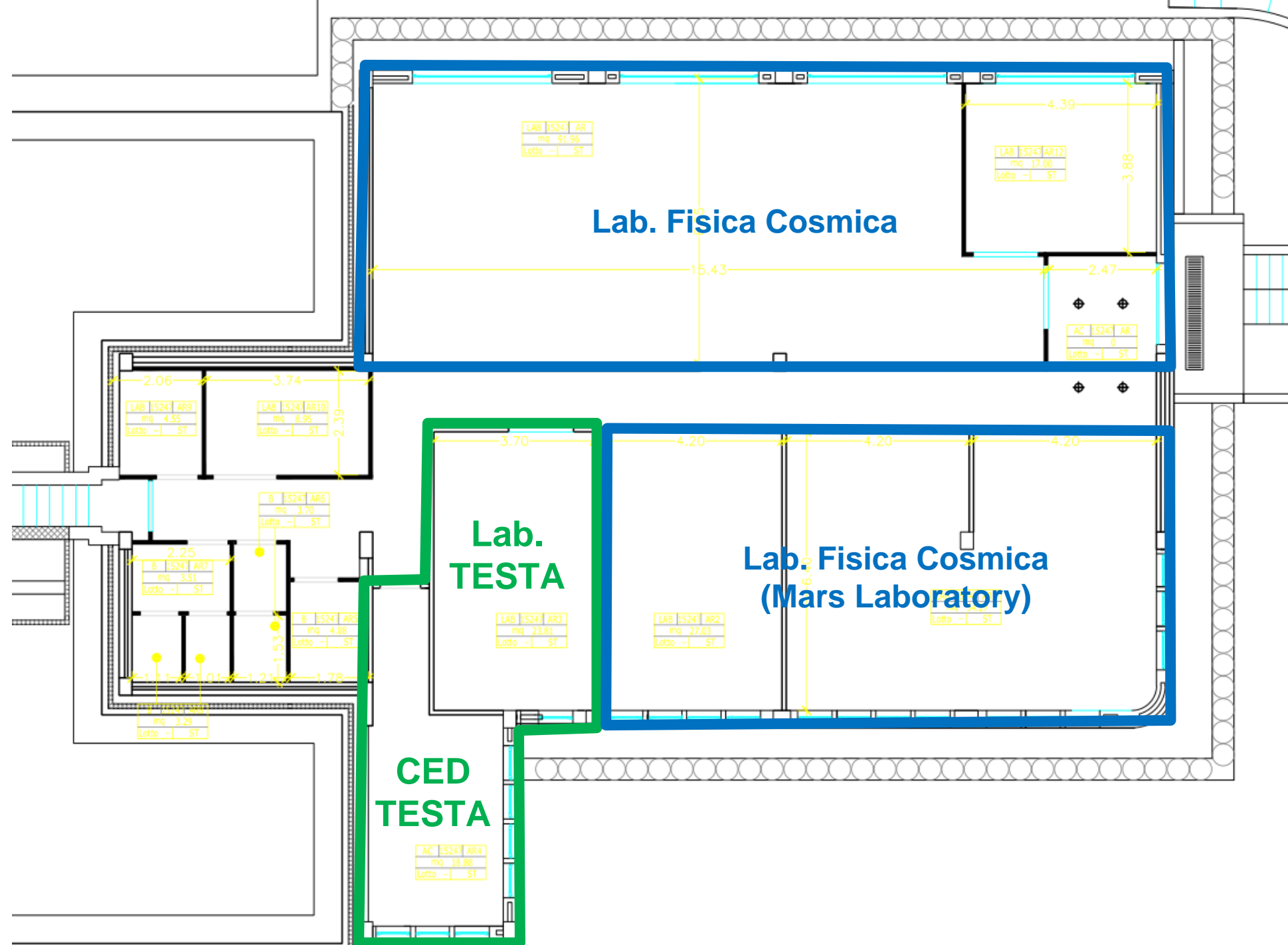
## Scientifiche

- INAF - OAPd
- INAF - OATs
- INAF - OAB
- INAF - OAA
- INAF - OACT
- INAF - TNG
- INAF - many others
- ESO
- Weizmann Inst. of Science - Tel Aviv
- Queen's Univ. - Belfast
- Turku Univ. - Fi
- ANU/AAO - Canberra, Sidney
- LAM - Marseille

## Industriali

- Novael srl
- EIE Group srl
- Officina Stellare spa
- Tomelleri srl
- Beckhoff Italia srl
- Zener srl
- Opak
- Osutra srls
- Distretto Aerospaziale Campania
- and many others

Edificio VST  
piano seminterrato  
laboratori  
tot. 400mq



# Villa della Riccia

piano terra





# Mars Laboratory

Fabio Cozzolino

INAF Osservatorio Astronomico di Capodimonte

22–24 Jun 2022

CSN5 - Forum della Ricerca Sperimentale e Tecnologica in INAF  
Area Ricerca Bologna

# Martian Atmosphere Simulation Chamber

Shape Chamber : Cylindrical.

Size Chamber : 1.34m x 2.09 m.

I developed a simulation chamber able to reproduce atmosphere martian condition :

*(Cozzolino, F. et al 2020)*

- Pressure 6-8 mbar.
- Chemical Composition (CO<sub>2</sub> 95% ; N 2.6 % ; 2 % Ar).
- Presence of Dust in the range size 0.2-50 μm.

In particular i have developed two systems injection of dust :

- Wet Injection (using a solution of ethanol and dust)
- Dry Injection ( placed inside the chamber).

The simulation chamber has been used for testing and calibration of **MicroMED** sensor.

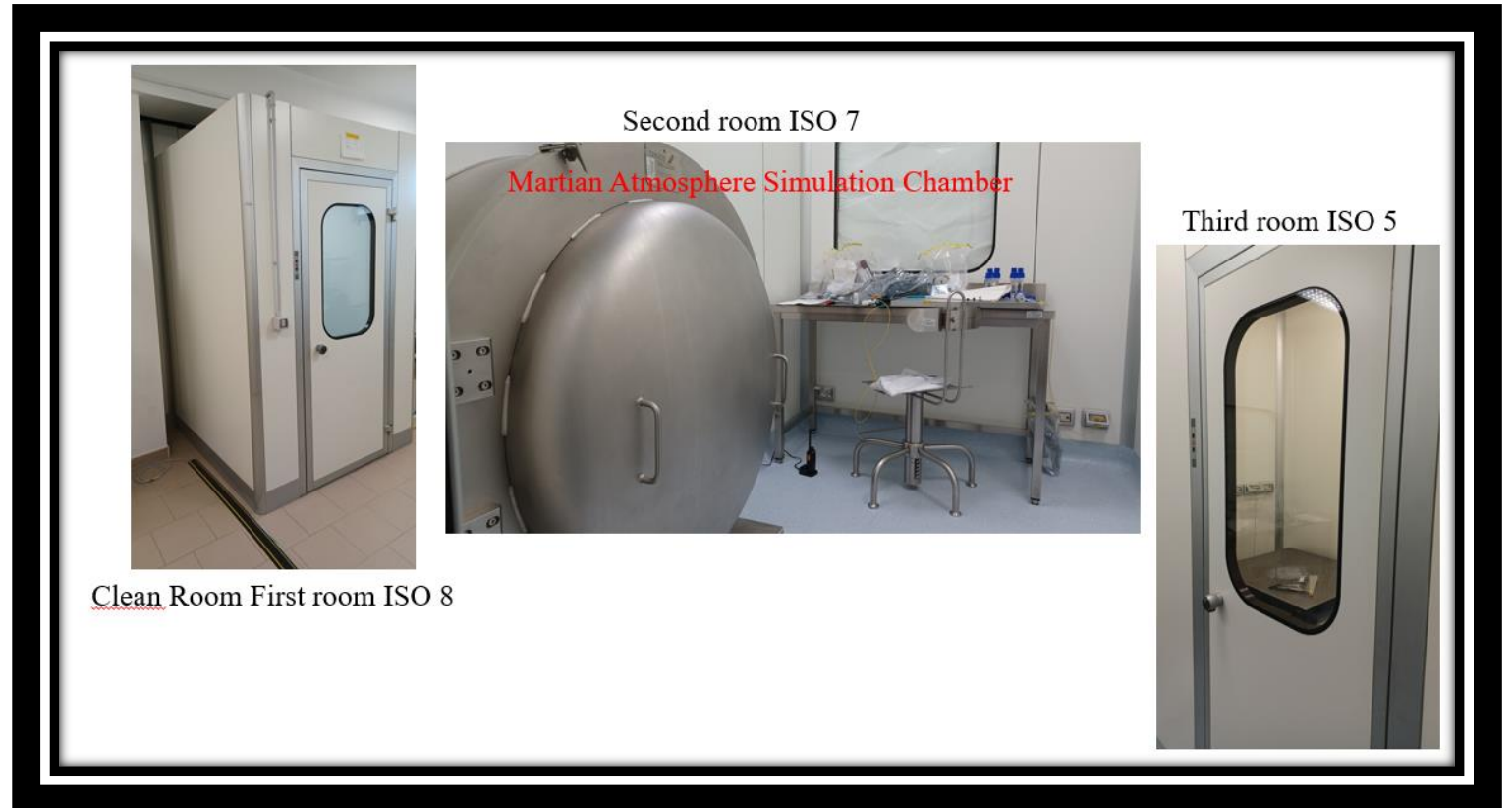


# Martian Atmosphere Simulation Chamber

The Martian Atmosphere Simulation Chamber is placed inside the clean room in order to be able to assemble, to test and to calibrate **MicroMED** instrument in according with the directives of the Planetary Protection.



**MicroMED**



# MicroMED an Optical particles Counter for Mars

**MicroMED**, realized to work in Martian environment, is an optical particle counter, uses the principle of light diffusion for detecting the grain of dust. It's able to aspire the dust through a sampling system and focusing them in a region called sampling volume illuminated by optical system. The light scattered produced between the interaction of the grain crossing the sampling volume is collected on the mirror and focused on photodiode. The response photodiode is directly linked to the size and chemical composition of dust.

Characterization of MicroMED :

- I. Suction test in order to verify the aspirating system of the instrument in a range diameter of 0.4 to 20  $\mu\text{m}$  (Cozzolino, F. et al 2021).
- II. Verify of the aspirating system able to convey all particles in the sampling volume.
- III. Measure of the Sampling Volume : Shape, Size and Power optical Density.
- IV. Verify of the Electrical Board.

