

Luca Giovannelli

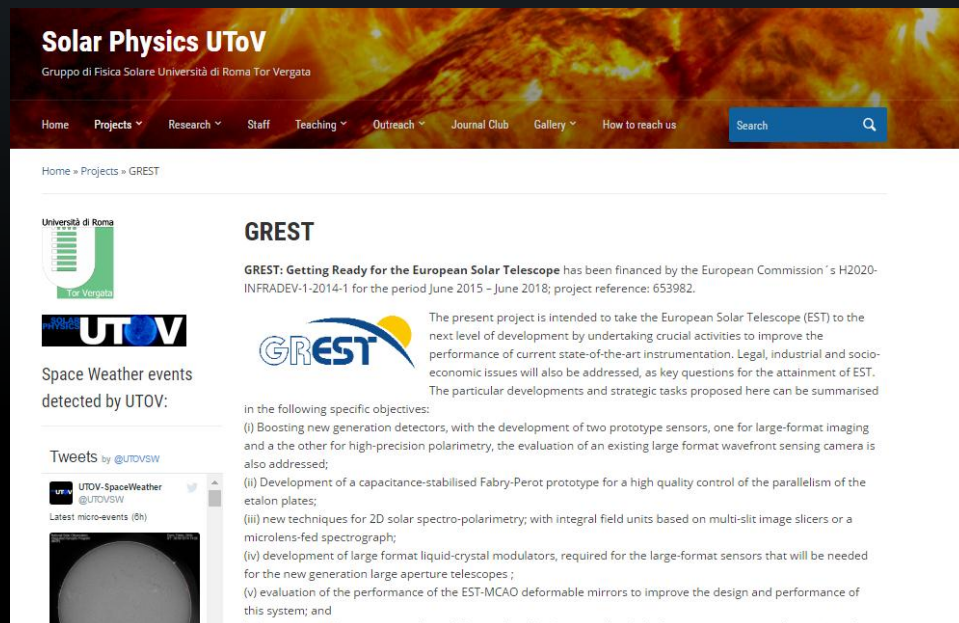
University of Rome Tor Vergata



My research area is Heliospheric and Solar Physics with focus on Sun-Earth relations and experimental techniques for Astrophysics.

- Ph. D. in Astronomy, Dec 2014, University of Rome Tor Vergata
- 2015 - 1 year postdoc in SOLARNET FP7 project (Rome UTOV)

- 2016 – postdoc at FGG Telescopio Nazionale Galileo (La Palma, Spagna)
 - Currently: Ricercatore Tda, Dip. Fisica (UTOV), [FIS06] main topics: GREST, SWe
- Additional info:
www.fisica.uniroma2.it/~solare/



Solar Physics UTOV
Gruppo di Fisica Solare Università di Roma Tor Vergata

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GREST

GREST: Getting Ready for the European Solar Telescope has been financed by the European Commission's H2020-INFRADEV-1-2014-1 for the period June 2015 – June 2018; project reference: 653982.

The present project is intended to take the European Solar Telescope (EST) to the next level of development by undertaking crucial activities to improve the performance of current state-of-the-art instrumentation. Legal, industrial and socio-economic issues will also be addressed, as key questions for the attainment of EST. The particular developments and strategic tasks proposed here can be summarised in the following specific objectives:

- (i) Boosting new generation detectors, with the development of two prototype sensors, one for large-format imaging and a the other for high-precision polarimetry, the evaluation of an existing large format wavefront sensing camera is also addressed;
- (ii) Development of a capacitance-stabilised Fabry-Perot prototype for a high quality control of the parallelism of the etalon plates;
- (iii) new techniques for 2D solar spectro-polarimetry; with integral field units based on multi-slit image slicers or a microlens-fed spectrograph;
- (iv) development of large format liquid-crystal modulators, required for the large-format sensors that will be needed for the new generation large aperture telescopes;
- (v) evaluation of the performance of the EST-MCAO deformable mirrors to improve the design and performance of this system; and

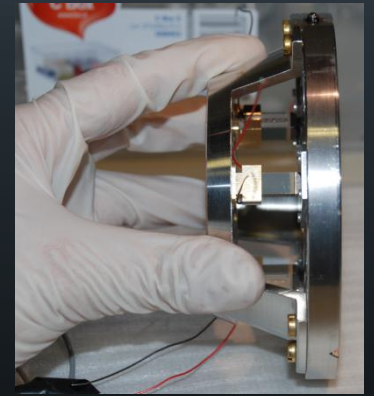
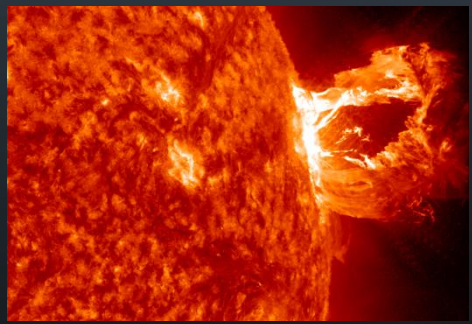
Tweets by @UTOVSW

UTOV-SpaceWeather @UTOVSW
Latest micro-events (th)



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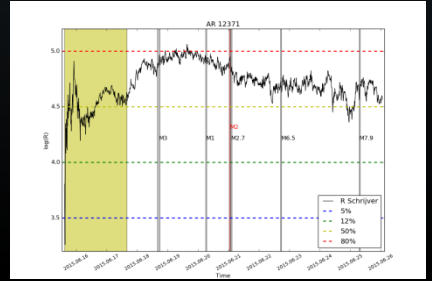
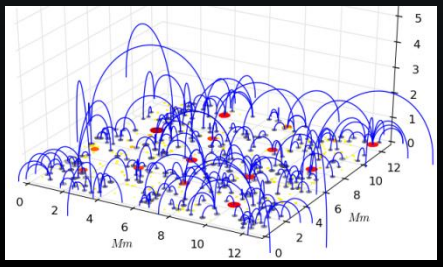
Main Research Topics



Instrumentation development
(mainly spectroscopy)

Numerical Simulations

Data analysis



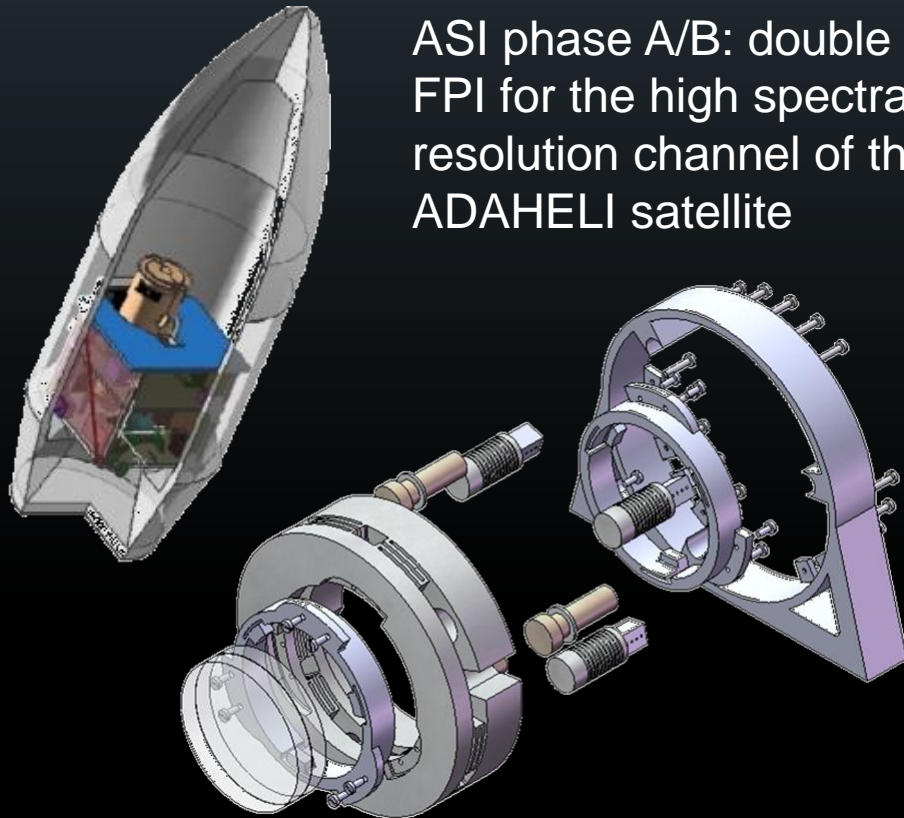
Teaching / Outreach

Instrumentation

Fabry-Pérot Interferometer (FPI)

ADAHELI
ADvanced Astronomy for HELIophysics

ASI phase A/B: double
FPI for the high spectral
resolution channel of the
ADAHELI satellite

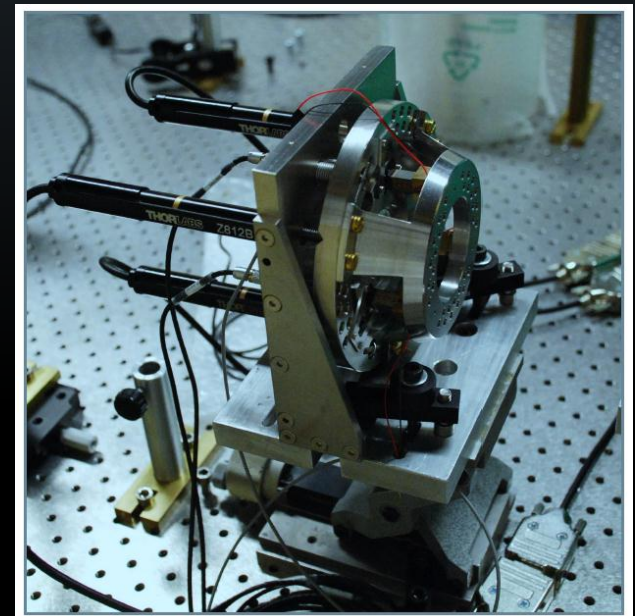


LUTIN



soLar group University of Tor vergata fabry-pérot INterferometer

In-house optical bench prototype



Instrumentation

Optical cavity gap: 0.5 - 3 mm

Diameter: 25.4 mm

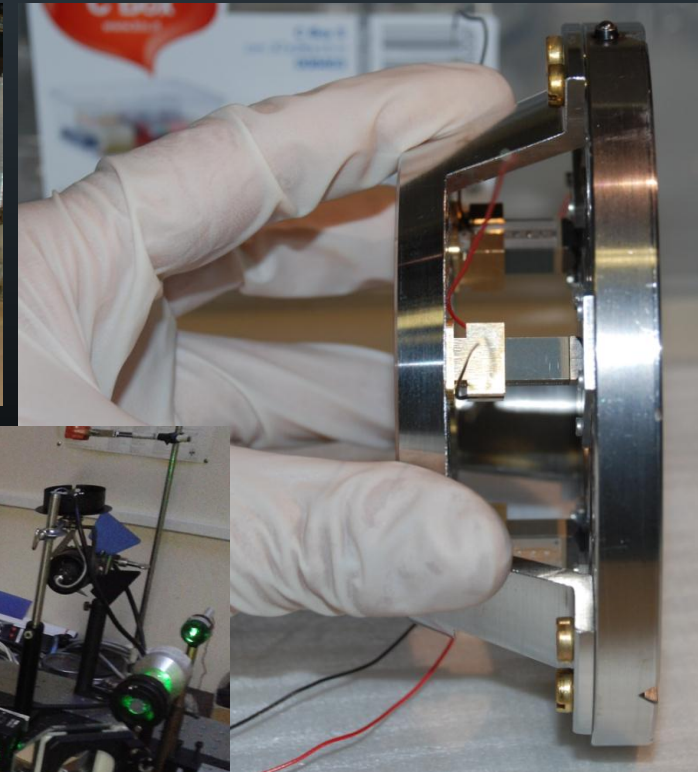
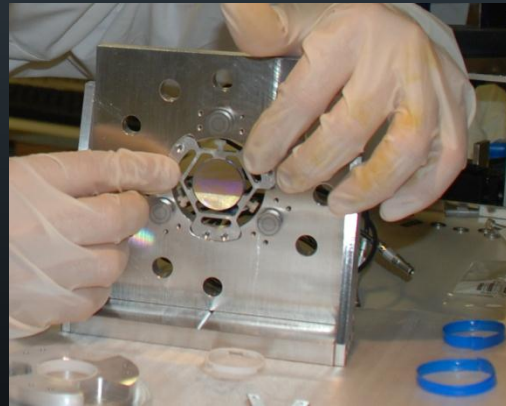
Finesse: 19

FSR: 0.2 nm

FWHM: 0.01 nm

Resolving power: 58 000

LUTIN FPI

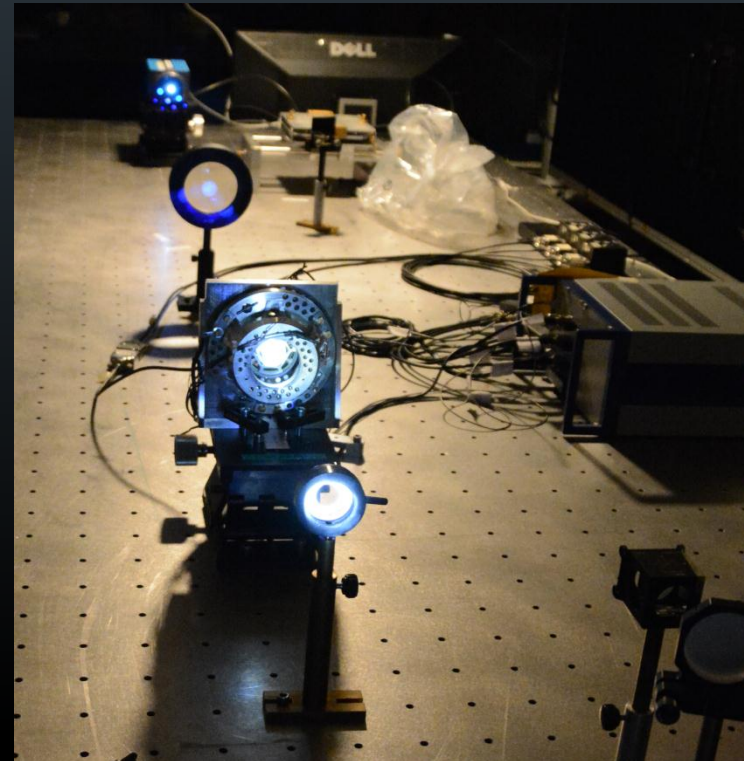


Instrumentation

PI LUTIN first light campaign



VTT @ Tenerife 23-30 May 2016



LUTIN during observations
@ VTT, 23-30 May 2016
SOLARNET accesses time



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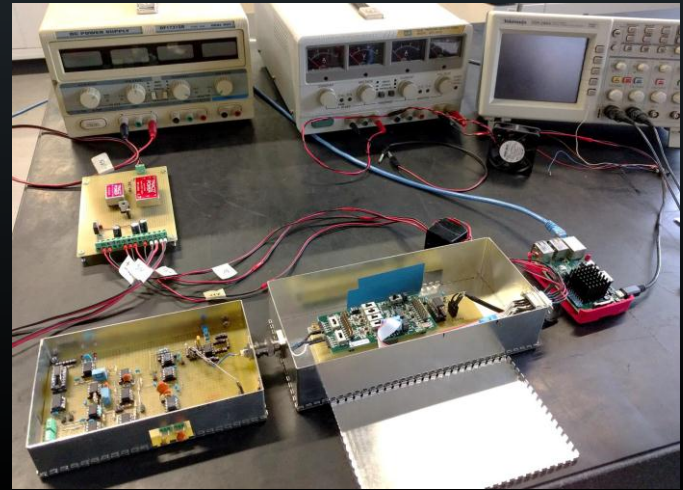
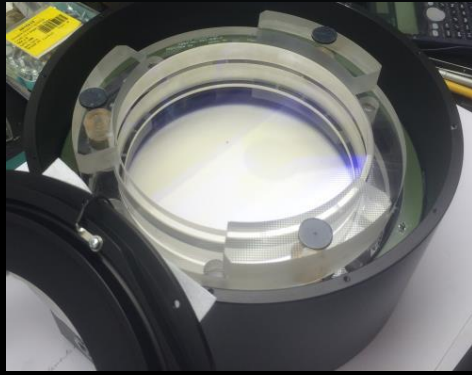
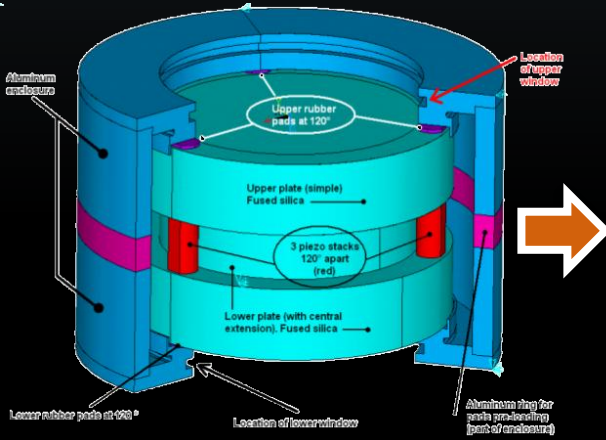
Instrumentation

EUROPEAN SOLAR FP7/ H2020 projects



New Fabry-Pérot design:

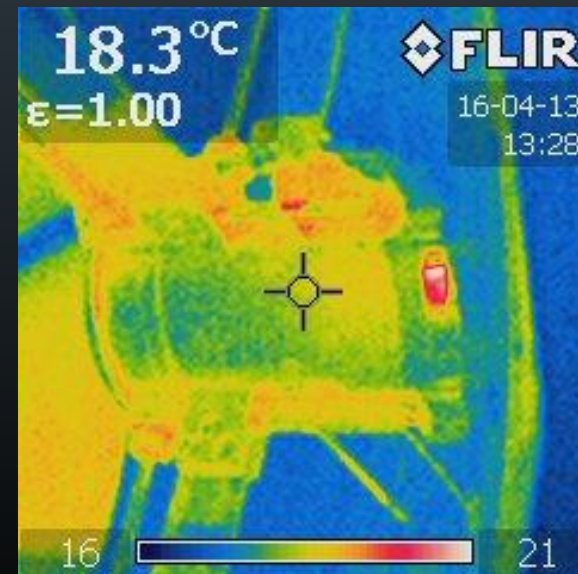
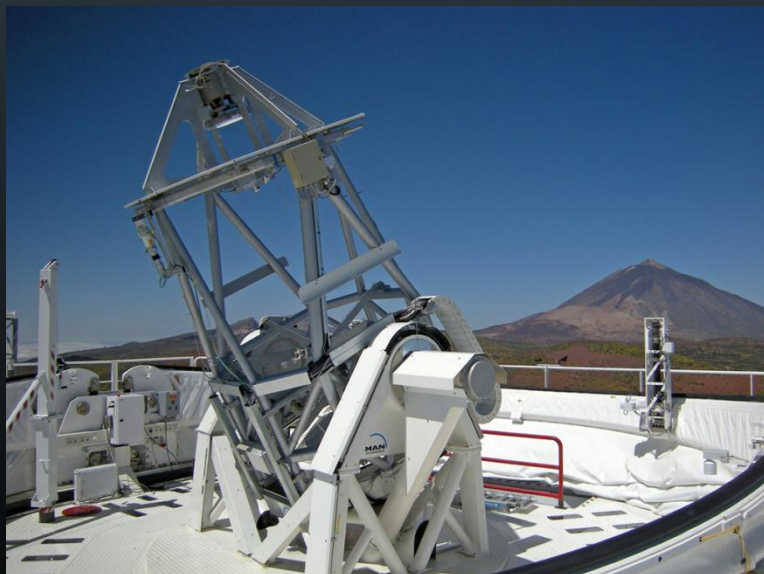
- better static and dynamic performance
- biggest etalon aperture available nowadays
- Collaboration with ICOS and ADS



NEW all digital control for FPI
Collaboration with ADS
In progress...

Instrumentation

Solar Heat Rejecter (HR)



- The EST (*European Solar Telescope*) is an on-axis Gregorian telescope equipped with a 4-m primary mirror.
- A considerable heat load (4.5 MW/m^2) is concentrated by the primary mirror on the F1 focal plane.



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Other Research Topics

Instrumentation

Magneto-Optical Filters for SWe

Instrumentation

Adaptive Optics systems in Solar Physics

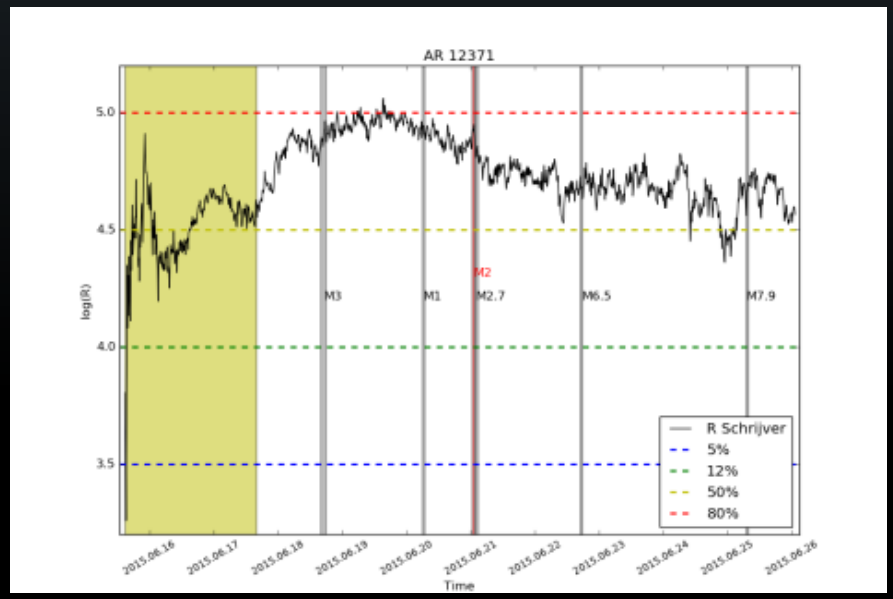
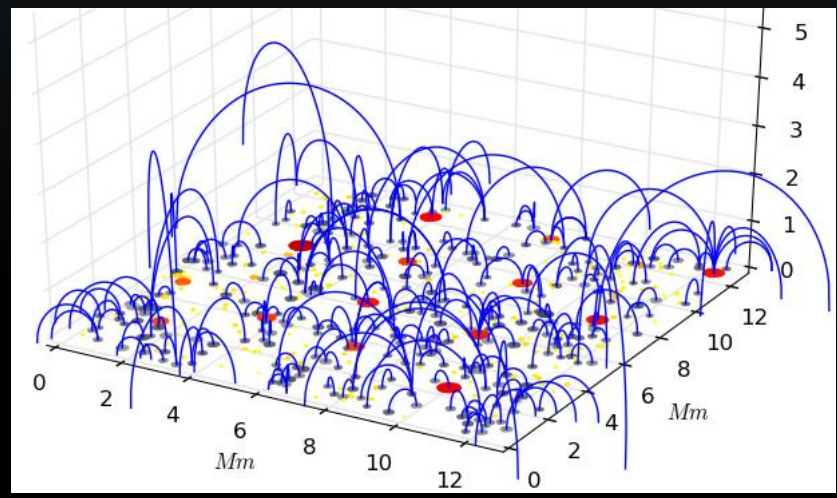
Simulation

Small scale magnetic reconnection in the solar atmosphere

Data analysis

Magnetic Proxies for SWe forecasting

Nanoflares and Corona heating





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Teaching and Outreach



2 yrs tutoring



5 yrs outreach



1 season Nautilus



8 yrs outreach



6 editions



All 12 editions

Teaching and Outreach

