

MISSIONE 4
ISTRUZIONE
RICERCA

STRENGTHENING THE ITALIAN LEADERSHIP IN ELT AND SKA



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Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA

Panel di riferimento: *PSE*

Titolo della Proposta: **STrengthening the Italian Leadership in ELT and SKA**

Codice della proposta: **IR0000034**

Tipologia: **(i) - Empowering**

Proponente: *INAF*

Infrastruttura di Ricerca: **E-ELT - Extremely Large Telescope**

Importo totale: **69.999.999,00€**

Di cui al Sud: **32.956.648,20€ (47,08%)**

Abstract:

STILES is a comprehensive program aimed at strengthening the Italian leadership in the exploration of the Universe by developing laboratories and instruments for the two largest ground-based telescopes of the next decades: the European Extremely Large Telescope (ELT) and the Square Kilometer Array (SKA).

STILES includes:

- Direct upgrades of ELT and SKA observational capabilities. We will build and use a suite of instruments on ELT and SKA, as well as on their precursors VLT/LBT and MeerKAT, respectively;
- Investments in Information Technology. They consist of HW and SW infrastructures that are fundamental to develop new instruments and analyse their data. They include a high-performance computing centre and machine-learningbased software tools for data analysis, and a Concurrent Design Facility and other infrastructures for instrument development.
- Development of laboratories to study exo-atmospheric conditions, which will allow us to investigate physical states that have never been observed on Earth, giving us crucial advantages in understanding and interpreting the data from ELT instruments.
- Development of R&D experiments and laboratories. The goal here is to invest in our laboratories to invent and explore new technologies in several fields (Adaptive Optics, optical detectors, and radio receivers) and apply them to the astronomical domain.
- National Testing Facilities. We propose to establish a network of facilities that are able to provide general services (like opto-mechanical design and manufacturing) as well as multi-purpose facilities for the characterisation of instruments and methods. These coordinated facilities will be available to all Italian and international technological groups.

- A unique scientific and educational program. The last pillar of our program is a coordinated PhD program and a nation-wide Post-doctoral program explicitly focused on science with ELT, SKA and their synergies, aimed at fostering the careers of young astronomers.

Elenco partecipanti alla Proposta:

- Istituto nazionale di astrofisica
- Università degli Studi Alma Mater - Bologna
- Università degli Studi di Catania
- Università degli Studi di Milano La Statale
- Università degli studi di Napoli Federico II
- Università degli Studi di Palermo
- Università degli Studi La Sapienza - Roma
- Università degli Studi Tor Vergata - Roma