STELLAR

Scientific and Technological Excellence by Leveraging LOFAR Advancements in Radio Astronomy

What is STELLAR?

The Institute of Astronomy and National Astronomical Observatory (IANAO) is proud to collaborate with the Netherlands Institute for Radio Astronomy (ASTRON), the Dublin Institute for Advanced Studies (DIAS), and the Technical University of Sofia (TUS) on a transformative project for training the next generation of Bulgarian radio astronomers. The project started on September 1, 2020, and will run for 36 months.

The project **"Scientific and Technological Excellence by Leveraging LOFAR Advancements in Radio astronomy" (STELLAR)**, funded by EU's Horizon 2020 Twinning program, will significantly increase the LOFAR technical and scientific expertise at TUS and IANAO. It will allow IANAO and TUS to develop and strengthen collaborations with ASTRON and DIAS.

> **STELLAR is a major step towards the realization, utilization, and further development of a LOFAR station in Bulgaria.**

What is LOFAR?

The Low-Frequency Array (LOFAR) is a multi-functional, highly innovative, pan-European distributed low-frequency radio telescope, operating between 10 and 240 MHz. It was developed by the Dutch Institute for Radio Astronomy (ASTRON) with the goal of exploring the early, distant Universe, solar activity, and the terrestrial atmosphere. LOFAR is comprised of a large number of innovative observing stations throughout the Netherlands and parts of Europe, each consisting of phased arrays of dipole antennas, connected via fast optical fibres.

Why STELLAR?

STELLAR will have a multiplicative effect for the Bulgarian astronomical and geophysical community as a whole through the development of radio astronomy, space weather, and radio technology training curricula for Bulgarian scientists and engineers, thus ensuring a strong sustainable effect of the project.**The focus brought by LOFAR technology and science will open a new exciting direction for scientific research and technological development in the area.**

What are the STELLAR Objectives?

To significantly increase the technical and radio astronomy expertise and utilization of LOFAR data at IANAO and TUS as part of the strategy for development of a national radio astronomical observatory in Bulgaria, by transferring technical and scientific know-how from world-leading radio astronomical institutions; During the project-organized schools, training sessions, and hand-on practices on radio astronomy and related LOFAR engineering aspects, IANAO and TUS participants and staff will be able to learn and become experienced in the LOFAR data handling and analysis.

To improve the capacity of IANAO staff to carry internationally competitive RA and SW research; With the obtained experience in LOFAR related instrumentation and data, IANAO staff will be able to participate more actively in research collaborations with renowned researchers in the field and also lead their own research in radio astronomy.

To develop and strengthen long-term research collaborations between IANAO, ASTRON, DIAS, and TUS; This project will be used as a foundation for a long-term collaboration and staff/students exchange between the participating institutes.

To prepare for future sustainable development of a LOFAR observing station in Bulgaria. During the project, IANAO team, aided by TUS, will gain the necessary research and technical experience, e.g. for the analysis, data flow handling and management of facilities, all of these needed for a project for a local LOFAR station.

Want to learn more?

Visit our project website at https://lofar.bg/stellar