



Horizon 2020 project

**"Scientific and Technological Excellence by Leveraging
LOFAR Advancements in Radio Astronomy" — STELLAR
(Grant Agreement 952439)**

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Institute of Astronomy and National Astronomical Observatory

STELLAR General Information

- ✓ Call: H2020-WIDESPREAD-2018-2020, Twinning topic
- ✓ Budget: 899 878.75 EUR
- ✓ EU Grant: 899 877 EUR
- ✓ Duration: 36 months
- ✓ Start Date: 01 September, 2020

STELLAR Consortium

Members:



Institute of Astronomy and National Astronomical Observatory - IANAO (Coordinator)



The Netherlands Institute for Radio Astronomy - ASTRON



Institiúid Ard-Léinn | Dublin Institute for
Bhaile Átha Cliath | Advanced Studies

Dublin Institute of Advanced Studies - DIAS



Technical University of Sofia - TUS

STELLAR Overall

Objectives:

- ✓ To significantly increase the technical and radio astronomy expertise and utilization of LOFAR data at IANAO and TUS, by transferring technical and scientific know-how from world-leading institutions;
- ✓ To **improve the capacity of IANAO staff** to carry internationally competitive RA and SW research;
- ✓ To develop and strengthen **long-term research collaborations** between IANAO, ASTRON, DIAS, and TUS;
- ✓ To prepare for future **sustainable development** of a LOFAR observing station in Bulgaria.

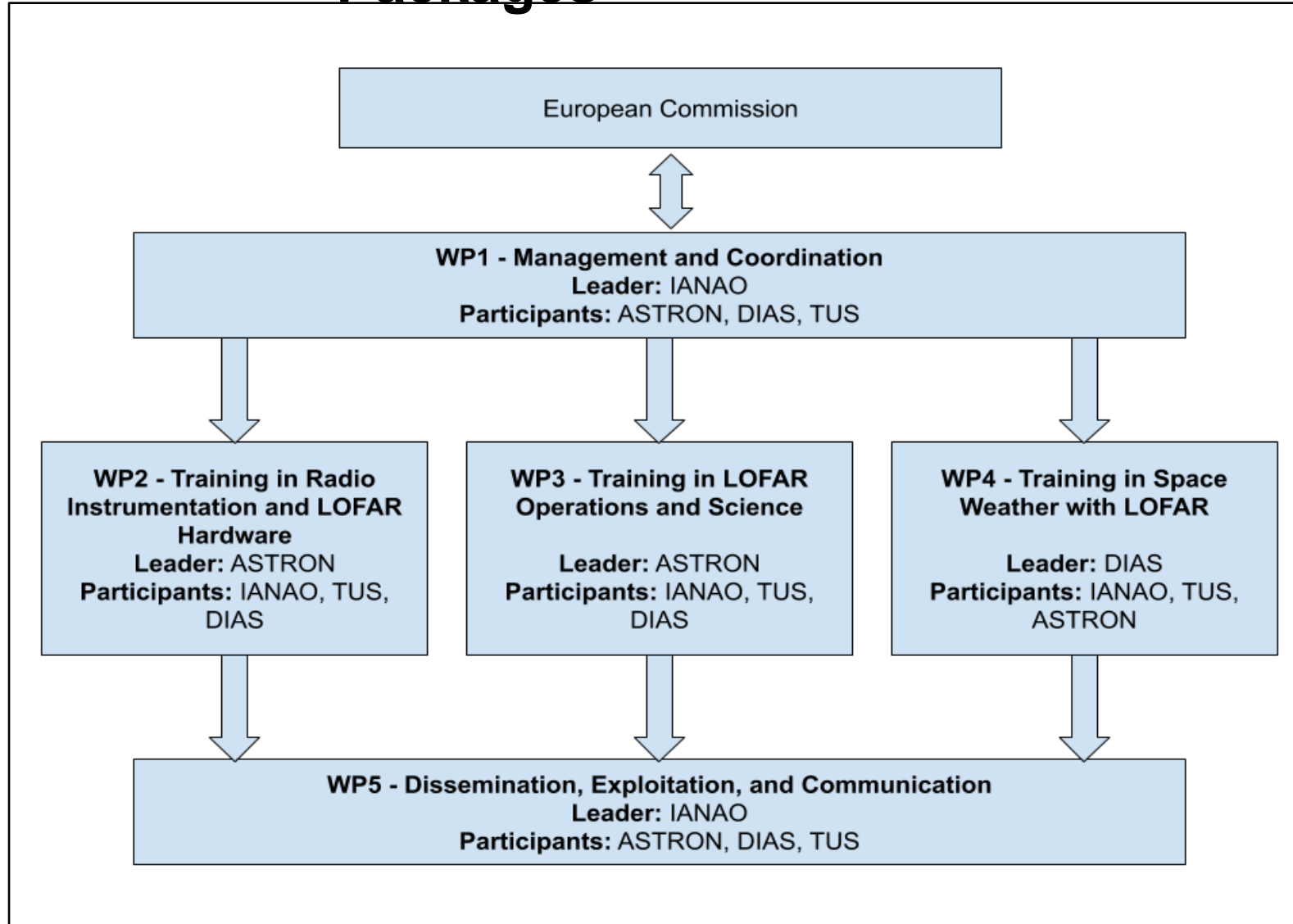
STELLAR Specific Objectives:

- ✓ To **transfer** scientific and technical **knowledge and capacity in radio astronomy** from the highly experienced staff in ASTRON and DIAS to IANAO and TUS staff by means of versatile training activities;
- ✓ To expand the research potential of the local **solar and space weather scientists** through a combination of target training activities and research discussions and collaborations using LOFAR observations;
- ✓ To provide an opportunity for IANAO and TUS scientific and engineering personnel to build the necessary expertise and technical **capabilities required for the building and operation of a Bulgarian LOFAR station**;
- ✓ To **develop local educational curricula** for sustainable development of radio astronomy in Bulgaria.

Why STELLAR? Why now?

- ✓ Recently, increased interest among IANAO researchers in low-frequency radio observations of solar activity, cool stars, and active galactic nuclei;
- ✓ Adoption of capability and know-how for LOFAR - an advanced pan-European technological development;
- ✓ STELLAR aligns fully with Bulgaria's National Strategy for Smart Specialization;
- ✓ At present, IANAO has expertise mostly in optical astronomy research, not so much in the radio domain;
- ✓ While IANAO has low technical expertise, TUS has significant experience with general phased-array (PA) antenna development and signal processing;
- ✓ ASTRON and DIAS are the right partners for such advanced training and transfer of knowledge to IANAO and TUS.

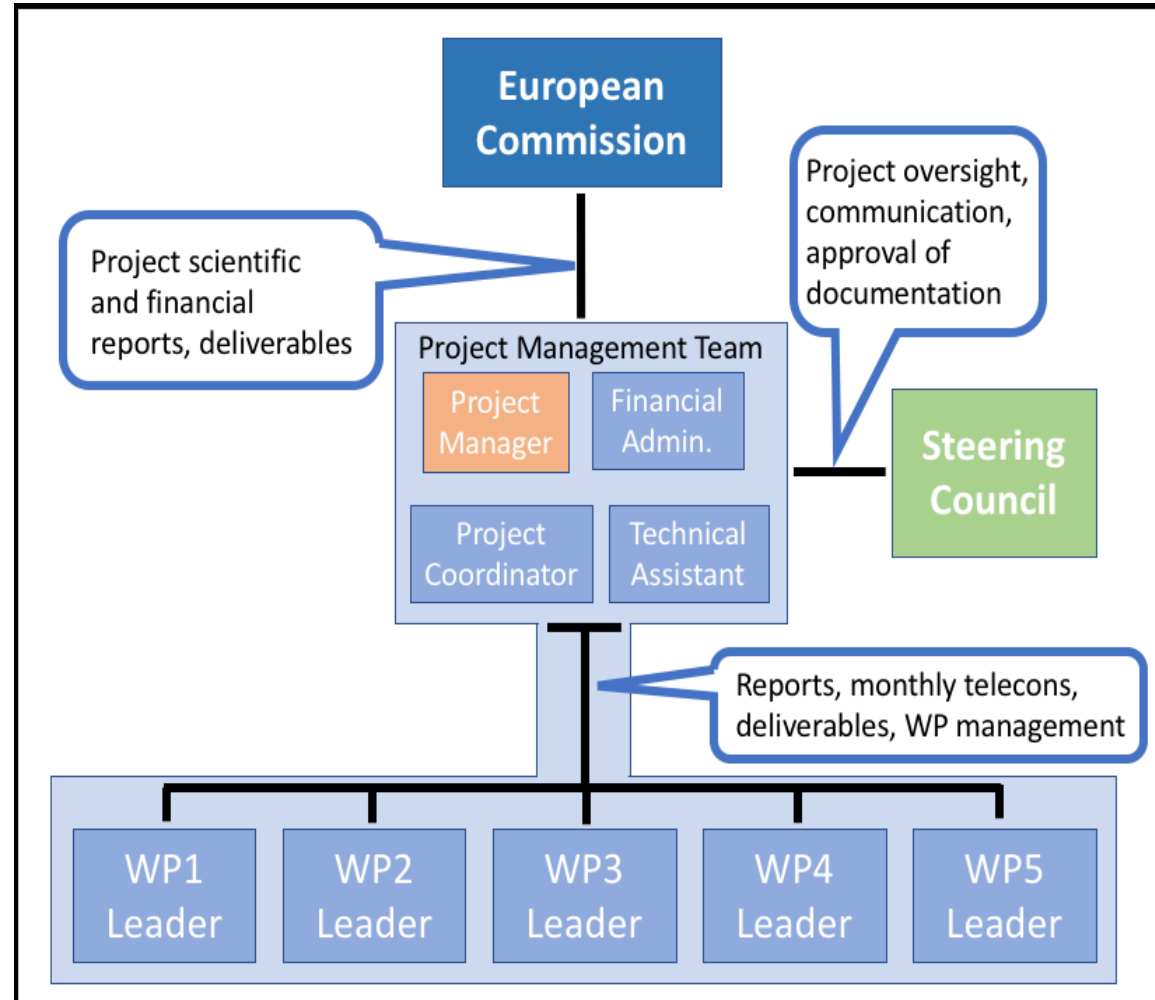
STELLAR Work Packages



STELLAR Management Structure

Project Management Team (PMT)

- Project Manager, WP1 leader
Dr. Kamen Kozarev (IANAO)
Project Coordinator
- Dr. Rositsa Miteva (IANAO)**
Financial Administrator
- Ms. Mariana Atanasova (IANAO)**
Technical Assistance
- Dr. Momchil Dechev (IANAO)**
TUS Representative
- Dr. Peter Petkov (TUS)**
WP2 Leader
- Eng. Ronald de Wild (ASTRON)**
WP3 Leader
- Dr. Pietro Zucca (ASTRON)**
WP4 Leader
- Dr. Eoin Carley (DIAS)**
WP5 Leader
- Dr. Antoaneta Antonova (IANAO)**



Steering Council (SC)

- Prof. Evgeni Semkov (IANAO)**
Dr. Rene Vermeulen (ASTRON)
- Prof. Peter Gallagher (DIAS)**
Prof. Boncho Bonev (TUS)

STELLAR Current Developments - COVID-19 situation

- ✓ Project website - <http://lofar.bg/stellar>
- ✓ Preparation of first training visits:

Task #	Task Name	Dates	Status
WP2-T1	ASTRON Training I on RF Technology and RF Development - part 1;	02/2021	ONLINE
			ONLINE
WP3-T1	LOFAR Data School	03/2021	POSTPONED
WP3-T2	LOFAR Data Reduction and Analysis Training at ASTRON	04/2021	POSTPONED
			ONLINE
WP2-T3	ASTRON Training II on Phased Array Digital Signal Processing - part 1	06/2021	
✓ Dynamically reassessing situations in Bulgaria, Netherlands, and Ireland ✓ Adapting to reality - project definitely suffering from lack of hands-on training ✓ POSTPONE is better than ONLINE - but can't postpone indefinitely!			



Thank you!

LOFAR-BG Status



- ✓ Project for the development of a Bulgarian radio observatory and LOFAR station - <http://lofar.bg>
- ✓ Recently accepted into the Bulgarian National Roadmap for Research Infrastructure!
- ✓ Expect to be funded within the next 5-7 years
- ✓ Currently working with ASTRON colleagues on survey of possible site of LOFAR-BG station
- ✓ Budget for 2021 activities submitted (land acquisition, infrastructure development)



LOFARBG

