



# DOCUMENT

## Announcement of Opportunity for European Scientists on the WFIRST Formulation Science Working Group

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## 1 INTRODUCTION

The Wide-Field Infrared Survey Telescope (WFIRST) is a NASA observatory designed to perform wide-field imaging and surveys of the near infrared sky. It will combine investigations of dark matter and dark energy with those of exoplanets. The current mission design makes use of an existing 2.4 m telescope, which is the same size as the Hubble Space Telescope's primary mirror. WFIRST will have two instruments, the Wide Field Instrument (WFI), and the Coronagraph Instrument (CGI). As the primary instrument, the Wide Field Instrument will measure the properties of a billion galaxies and will perform a microlensing survey to discover ~2,600 exoplanets over the course of the mission's nominal 6-year lifetime. The Coronagraph Instrument will be used to investigate some dozens of exoplanets over the course of the mission.

The purpose of this Announcement of Opportunity (AO) is to solicit the participation of scientists affiliated with institutes located in the ESA Member States<sup>1</sup> in the NASA WFIRST Formulation Science Working Group (FSWG). NASA has indicated an interest in a European contribution to this NASA-led mission. Such participation could include both ESA-provided items following a "Mission of Opportunity" proposal to the Science Programme of ESA and subject to approval by the Science Programme Committee (SPC) and contributions that would be funded directly by the Member States under ESA's coordination. In order to further develop the mission's development, NASA has established a WFIRST Science Team and would welcome European participation to this team.

A description of the scientific objectives and the current WFIRST design is to be found at: [http://wfirst.gsfc.nasa.gov/science/sdt\\_public/WFIRST-AFTA\\_SDT\\_Report\\_150310\\_Final.pdf](http://wfirst.gsfc.nasa.gov/science/sdt_public/WFIRST-AFTA_SDT_Report_150310_Final.pdf).

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<sup>1</sup> The 22 ESA Member States are: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland and the United Kingdom.

## 2 WFIRST SCIENCE TEAM

There are two layers of involvement for the science community in the formulation and development of WFIRST. The WFIRST Science Team is made up of several Science Investigation Teams (SITs) covering the main scientific areas of the mission. The leadership of the SITs (PIs and some Deputy PIs) are members of the FSWG.

NASA has formed the WFIRST FSWG from key scientists from the WFIRST Project, the leadership of the SITs, two Adjutant Scientists and other *ex officio* members. The Project Scientist will chair the FSWG with the Adjutant Scientists acting in the role of Deputy Chairs. The *ex officio* members will include, at a minimum several scientists from the WFIRST Project, the WFIRST Program Scientist from NASA Headquarters, and any *ex officio* members from partners. Following the release of this AO and subsequent review, ESA intends to recommend to NASA up to two European scientists for inclusion as *ex officio* members of the FSWG.

The FSWG will work with the WFIRST Project in the design, development and implementation of the WFIRST observatory. The FSWG will be responsible for the development and flow-down of scientific performance issues concerning the mission. The FSWG will support WFIRST science activities during the pre-formulation and formulation phases through to the Critical Design Review, about 5 years, after which NASA intends to disband the FSWG and constitute a Science Working Group for the development and operational phases.

The SITs are responsible for the following tasks in support of the proposed scientific investigations with WFIRST:

- Development of scientific performance requirements;
- Design of notional observing program(s);
- Development of science data analysis techniques; and
- Development of simulations and data challenges to validate the above items.

There is an Adjutant Scientist for each instrument, the WFI and CGI. The Adjutant Scientists serve as Co-Deputy Chairs of the FSWG. The Adjutant Scientists are responsible for:

- Coordinating the performance requirements and observing programme activities of the SITs, with respect to the relevant instrument (WFI or CGI);
- Acting as a liaison between the SITs and WFIRST Project Scientists for each relevant instrument team;
- Advising on the optimization of the use of the relevant instrument to achieve all the WFIRST science outcomes in balance; and
- Coordinating with the astronomical community of the science capabilities of the relevant instrument.

Information on the current FSWG and SIT members and the SIT topics can be found on the WFIRST website: <http://wfirst.gsfc.nasa.gov/>.



### 3 APPOINTMENT REQUIREMENTS AND CONDITIONS

This call for FSWG members for the WFIRST mission is open to scientists affiliated with institutes located within the ESA Member States.

The proposals should demonstrate the candidate's expertise in one or more of the WFIRST core science fields and the expected contribution to the mission science in general. The proposals should also include an explicit mention of the time commitment to the WFIRST FSWG activities and the endorsement and support from the head of the applicant's institution to their application.

Applications from candidates who might potentially lead a nationally funded contribution are welcome. Such applications will need to be accompanied by a Letter of Support from the relevant national funding agency, stating its readiness to fund the necessary study phase activities and to seek funding should the contribution be selected. In such cases, the relevance of the proposed contribution must be clearly spelled out in the proposal.

Following evaluation of the proposals by ESA, the Director of Science (D/SCI) will recommend any successful European candidates to NASA for appointment to the FSWG. The appointments will be *ad personam*.

ESA will cover the cost of travel and subsistence in connection with any meetings selected candidates are required to attend as members of the FSWG. There are expected to be a maximum of three FSWG meetings and one broader Science Team meeting each year.

Each European FSWG member will be required to submit an annual report of his or her WFIRST FSWG-related activities to ESA. At the end of the two-year period, the D/SCI will decide whether to recommend the extension of the appointment to NASA for a further term.

Should a European WFIRST FSWG position become vacant, it may be filled by competitive selection via a new AO process.

Should there be no eventual European participation in WFIRST, then the European FSWG appointments may be terminated.



## **4 LETTERS OF INTENT**

Prospective proposers must submit a mandatory Letter of Intent (LoI) by the deadline indicated in Table 1. Proposals not preceded by a corresponding LoI will not be considered. LoIs are limited in length to 2 A4 pages (minimum font size 11 pt), and their purpose is to allow ESA to prepare for the evaluation process.

Letters of intent must be structured to contain the following information:

- Proposal title;
- Name and contact information of proposer;
- Short description of the proposed scientific contributions.

It is understood that the proposal's content may evolve between submission of the LoI and submission of the actual proposal.



## 5 CONTENTS OF THE PROPOSAL

Proposals submitted in response to the AO are limited in length to 12 A4 pages (minimum font size 11 pt), and must contain the following information:

- A cover letter stating the proposal title, proposer's name and affiliation and explicitly mentioning the proposer's title, position, institute, address, telephone number and e-mail address (max. 1 page);
- A brief curriculum vitae including the 10 most relevant publications (max. 2 pages);
- A description of the proposer's scientific expertise that is relevant to the WFIRST science objectives (max. 2 pages);
- A description of the proposed contributions to the FSWG activities and a statement concerning the time availability (max. 6 pages);
- A Letter of Endorsement, signed by the proposer's Head of Institute, with the endorsement to the proposer's application and the explicit support with respect to the proposed activities and the availability of facilities and infrastructure, as needed to the proposer for the accomplishment of the activities (max. 1 page);
- A Letter of Support from the proposer's national funding agency, if relevant.



## **6 EVALUATION CRITERIA**

The following criteria will be used (in no particular order) in assessing and evaluating individual proposals:

- Candidate's competence and experience relative to the WFIRST science objectives;
- The relevance of any potential nationally funded contributions to the mission;
- The level to which the proposal identifies specific competences and addresses the contribution to the WFIRST science objectives;
- Adequacy of the time that the candidate intends to devote to activities related to the WFIRST FSWG role, and;
- Adequacy of resources available to the candidate to carry out activities related to the FSWG role.



## 7 LETTERS OF INTENT AND PROPOSALS SUBMISSION

Letters of Intent and Proposals must be submitted electronically in PDF format (file size cannot exceed 20 MB) according to the instructions on the following webpage:

[www.cosmos.esa.int/web/wfirst](http://www.cosmos.esa.int/web/wfirst)

and according to the deadlines listed in Table 1.

Proposers will receive confirmation upon successful receipt of their Letters of Intent and Proposals.

**Table 1: AO schedule and deadlines**

<b>Date</b>	<b>Event</b>
9 February 2016	Release of this AO
8 March 2016 12:00 CEST	Mandatory Letters of Intent due
8 April 2016 12:00 CEST	Proposals due
July 2016	Appointment of European WFIRST FSWG members

Further queries should be addressed to:

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## ACRONYMS

AO	Announcement of Opportunity
CEST	Central European Summer Time
CGI	Coronagraph Instrument (on WFIRST)
D/SCI	Director of the ESA Science Programme
ESA	European Space Agency
FSWG	Formulation Science Working Group
LoI	Letter of Intent
NASA	National Aeronautics and Space Administration
PI	Principal Investigator
SCI	Science Directorate of ESA
SIT	Science Investigation Team
SPC	Science Programme Committee of ESA
WFI	Wide Field Instrument (on WFIRST)
WFIRST	Wide Field Infrared Survey Telescope