



ANNOUNCEMENT OF OPPORTUNITY FOR AN INTERDISCIPLINARY SCIENTIST AND GUEST INVESTIGATORS IN THE BEPICOLOMBO MISSION

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1. INTRODUCTION

1.1 Purpose and scope

This Announcement of Opportunity (AO) solicits applications by scientists to augment the scientific return of the BepiColombo mission and aims to appoint up to one Interdisciplinary Scientist (IDS) from ESA Member States and up to eleven Guest Investigators (GIs), up to five from ESA Member States, up to one from Japan, and up to five from the USA. In 2019, a first call resulted in the selection of six IDSs and six GIs. By July 2024, one of the IDS positions became vacant, prompting the issuance of the current call to appoint a new IDS. The new GI positions will increase the number of the currently appointed scientists and replace those whose term has ended.

BepiColombo is an interdisciplinary mission to the planet Mercury, carried out as a joint project between ESA and JAXA, with the participation of NASA, and executed under ESA leadership. It consists of two orbiters, the Mercury Planetary Orbiter (MPO) and the Mercury Magnetospheric Orbiter (MMO, also known as Mio), which are dedicated to the detailed study of the planet and its magnetosphere. The MPO is a three-axis-stabilised and nadir pointing spacecraft in a low-eccentricity polar orbit (480 km x 1500 km altitude). The MMO is a spinning spacecraft in a 590 km x 11640 km altitude polar orbit. The MPO payload comprises 11 instruments/instrument packages; the MMO payload consists of 5 instruments/instrument packages. The payload complements of MPO and MMO are listed in the Annex.

The BepiColombo mission was launched on 20 October 2018. Arrival at Mercury and start of the science exploitation phase are planned in late 2026 and early 2027, respectively. The duration of the nominal science operations is one Earth year, with a possible one-year extension.

The schedule for this AO cycle is given in Table 1.

Table 1: Schedule and deadlines for this AO

Event	Date
Release of this AO	22 April 2025
Letters of Intent due	20 May 2025 at 12:00 hrs (noon) CEST
Proposals due	10 June 2025 at 12:00 hrs (noon) CEST
Appointment of IDS and GIs	Q4 2025

1.2 Background documentation and information

[AO-D1] BepiColombo MPO Science Management Plan

[AO-D2] BepiColombo MMO Science Management Plan

1.3 Mission summary and IDS and GI tasks

A mission summary is included in Section 2 of the BepiColombo Science Management Plan (SMP) [AO-D1], which defines the top-level scientific management of the mission, and describes the respective roles of the parties involved, the data products, the data products delivery scheme and the data rights. It also defines modes of participation of the scientific community in the BepiColombo programme, including IDSs and GIs.

IDSs are expected to focus their efforts on scientific cross-fertilisation. Therefore, IDSs should not reflect instrument specific domains, but cover science themes such as, for instance, planetary surface morphology, mineralogy, exosphere, and interior structure. IDSs are expected to be heavily involved with and/or have a leading role in the scientific activities of the mission. IDSs may also wish to undertake specific and time-limited tasks in areas such as modelling of the planet and its environment, mission and science operation planning, hazard assessment and similar activities that may be required during the mission. The appointment of an IDS may also be considered for the coordination of MPO-MMO science. IDSs will take part in the analysis of data from different instruments on-board one or more elements of the mission.

For these analyses they have the same data rights as the members of the Principal Investigator-led instrument consortia.

The IDS, as part of their role, will have to participate in the BepiColombo Science Working Team (SWT) activities, including attending the regular SWT meetings. Individual scientists applying for the IDS position can submit proposals as individuals, possibly supported by a team.

GIs are individual scientists wishing to make use of the data collected by one or more instruments, spacecraft sensors or tracking data, in combination with results from other missions, ground-based observations, laboratory measurements, or numerical models. The purpose of GIs is to spread the use of, and complement, BepiColombo data more widely in the planetary science community.

Proposers for GI positions are requested to contact and discuss their planned investigations with the Principal Investigators (PIs) of the instrument(s) they plan to use data from (see Annex).

2. ELIGIBILITY AND APPOINTMENT CONDITIONS

This call for GIs is open to scientists based in ESA Member States, Japan and the USA. The call for the IDS is open to scientists based only in ESA Member States. PIs and Co-PIs of the BepiColombo instrument teams are excluded from this call, while Co-Investigators (Co-Is) are eligible for the IDS position, but not for GI positions.

The proposals for an IDS or a GI should demonstrate the candidate's expertise in one or more of the BepiColombo core science fields [see AO-D1 and AO-D2] and must describe clearly the scientific case, the relevance of the contribution to the mission, and the instrument data sets needed to carry out the research programme, according to the expected role of IDSs and GIs as outlined in the previous section. The proposals should also include an explicit mention of the time commitment to the proposed activities (the expected commitment is typically of the order of 0.2 FTE – Full-Time Equivalent) and the endorsement and financial support (as

needed) from the head of the applicant's institution and/or the respective funding institution to the application. IDS applicants will have to guarantee participation in the SWT meetings (on average two in-person meetings per year are expected¹) and in any other activity associated with the IDS appointment. GI applicants are requested to contact instrument PIs (see Annex) to agree with them the proposed work and the data needed for the proposed study.

The IDS and the GIs will be appointed for a first period of three years, renewable. ESA will not fund the activities of the IDS or the GIs (travel costs to attend meetings, etc.) and each proposer is responsible for securing their own funding. The IDS or GI appointment is *ad personam*.

Each selected IDS and GI will be required to submit short annual reports of their BepiColombo related activities to ESA.

Should IDS and/or GI positions become vacant, they will be filled through new competitive calls.

3. LETTER OF INTENT

Prospective proposers must submit a 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 two A4 pages (minimum font size 11 pt), and their purpose is to allow preparation for the evaluation process.

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

- Proposal title (with clear indication if the proposal is for an IDS or GI position);
- Name and contact information of proposer;
- Concise description of the scientific objectives.

¹ every second year one SWT meeting is organised in Japan.

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

4. CONTENTS OF THE PROPOSAL

Proposals submitted in response to the AO are limited in length to 10 A4 pages (minimum font size 11 pt), and must contain the following information:

- A cover letter stating the proposal title (with clear indication if the proposal is for an IDS or GI position), proposer's name and affiliation, and explicitly mentioning the proposer's title, position, and contact information (max. 1 page);
- A brief curriculum vitae also including the 10 most relevant publications (max. 2 pages);
- A description of the scientific expertise relevant to the BepiColombo science objectives described in [AO-D1] (max. 2 pages);
- A description of the proposed scientific investigation and a statement concerning the time availability (max. 5 pages).

In addition, the proposal must include (in the same file, but in addition to the maximum 10 pages of the proposal):

- Letters of Endorsement, signed by the proposer's Head of Institute and/or relevant funding agency/institution, with the endorsement to the proposer's application and the explicit support with respect to the proposed activities and the availability of funding, facilities and infrastructure, as needed to the proposer for the accomplishment of the IDS or GI tasks.
- For GI position applications: Letters of Endorsement, signed by the PIs of the BepiColombo science instruments that the proposer wants to work with, stating that the PI will grant access to the needed data for the proposed study.

A privacy notice, available on the submission portal, provides a comprehensive overview of the measures taken to safeguard and handle personal data submitted in response to this Announcement of Opportunity.

5. 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 BepiColombo science objectives;
- The scientific value of the proposal, and the level to which it identifies specific competences and their relevance to the exploitation of the BepiColombo data;
- Adequacy of the time that the candidate intends to devote to activities related to the IDS or GI role;
- Adequacy of resources available to the candidate to carry out activities related to the IDS or GI role.

6. LETTERS OF INTENT AND PROPOSALS SUBMISSION

Letters of Intent and Proposals must be submitted electronically in PDF format (file size cannot exceed 10 MB) according to the instructions on the following web page:

<https://cosmos.esa.int/web/bepicolombo-ids-gi-2025>

and according to the deadlines listed in Table 1.

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

Further queries should be addressed to:

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ACRONYMS

AO	Announcement of Opportunity
CEST	Central European Summer Time
Co-I	Co-Investigator
Co-PI	Co-Principal Investigator
ESA	European Space Agency
FTE	Full Time Equivalent
GI	Guest Investigator
IDS	Interdisciplinary Scientist
JAXA	Japan Aerospace Exploration Agency
Lol	Letter of Intent
MMO	BepiColombo Mercury Magnetospheric Orbiter
MPO	BepiColombo Mercury Planetary Orbiter
NASA	National Aeronautics and Space Administration
PI	Principal Investigator
SMP	Science Management Plan
SWT	Science Working Team

ANNEX

BepiColombo Scientific Payload

Mercury Planetary Orbiter (MPO)

Spectrometer and Imagers for MPO BepiColombo - Integrated Observatory (SIMBIO-SYS)	PI: G. Cremonese (IT)	Gabriele.Cremonese@inaf.it
BepiColombo Laser Altimeter (BELA)	Co-PIs: H. Hussmann (DE), N. Thomas (CH)	Hauke.Hussmann@dlr.de Nicolas.Thomas@space.unibe.ch
Italian Spring Accelerometer (ISA)	PI: F. Santoli (IT)	francesco.santoli@inaf.it
Mercury Orbiter Radio Science Experiment (MORE)	PI: L. Iess (IT)	Luciano.Iess@uniroma1.it
Magnetic Field Investigation (MPO-MAG)	PI: D. Heyner (DE)	D.Heyner@tu-bs.de
Mercury Radiometer and Thermal Imaging Spectrometer (MERTIS)	PI: H. Hiesinger (DE)	Hiesinger@uni-muenster.de
Mercury Gamma-Ray and Neutron Spectrometer (MGNS)	PI: I. Mitrofanov (RU)	imitrofa@space.ru
Mercury Imaging X-ray Spectrometer (MIXS)	PI: E. Bunce (UK)	Emma.Bunce@ion.le.ac.uk
Solar Intensity X-ray and particle Spectrometer (SIXS)	PI: E. Kilpua (FI)	emilia.kilpua@helsinki.fi
Probing of Hermean Exosphere by Ultraviolet Spectroscopy (PHEBUS)	PI: E. Quémerais (FR)	Eric.Quemerais@atmos.ipsl.fr
Search for Exospheric Refilling and Emitted Neutral Abundances (SERENA)	PI: A. Milillo (IT)	Anna.Milillo@inaf.it

Mercury Magnetospheric Orbiter (MMO)

Mercury Plasma Particle Experiment (MPPE)	PI: Y. Saito (JP)	saito[at]stp.isas.jaxa.jp
Plasma Wave Instrument (PWI)	PI: Y. Kasaba (JP)	kasaba[at]pat.gp.tohoku.ac.jp
Mercury Magnetometer (MMO-MAG)	PI: W. Baumjohann (AT)	Wolfgang.Baumjohann[at]oeaw.ac.at
Mercury Sodium Atmospheric Spectral Imager (MSASI)	PI: I. Yoshikawa (JP)	Yoshikawa[at]eps.s.u-tokyo.ac.jp
Mercury Dust Monitor (MDM)	PI: M. Kobayashi (JP)	Kobayashi.Masanori[at]it-chiba.ac.jp