



Ad ASTRA Workshop

Sep 1-3, 2026
Pasadena, CA





Day 2: Deliverables and Mandate

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Workshop Overview

Day 1

Science

Pressing Science Questions for Space Missions in the 2030s and Beyond:

- What are the science questions that future space missions should address?
- Are there new questions from strategic docs/Decadal?

Day 2

Technology & Capabilities

Emerging Technologies & capabilities needed

What capabilities are needed to answer these science questions?

Day 3

Community Discussion

Workshop synthesis 1: Key Science Questions for the 2030s and Beyond

Workshop synthesis 2: Key Technology Capabilities for the 2030s and Beyond

Posters are part of this discussion!

Mandate and Deliverables for Day

2: Capabilities



- Critical or key enabling technology and state of development
- Synergies with mission concepts
- What are the most demanding design drivers, if known?
- Leveraging external opportunities
 - e.g. commercial industry, the Artemis infrastructure, or strategic partnerships

Logistics (I)

Baxter Lecture Hall

- All plenary sessions will be held here
- *No food or drink allowed* (water is okay)
- Room is unlocked during the day – do not leave valuables unattended (room will be locked at the end of the day)
- Power outlets and strips are available on the floor in select rows
- Please enter and exit through the back of the room
- Restrooms are located one level down via the stairs at the back of the hall
- If you require elevator access, please contact the organizers.
- For remote attendees:
 - You will join as a Zoom Webinar Attendee
 - Your video and microphone will be disabled (but you can be unmuted by the host)
 - Use Zoom Q&A or Slack for questions

Workshop Wi-Fi

EDUROAM: Log in with your home institution credentials

Caltech Visitor Network:

Registration using a cell phone is required

Logistics (II)

Breakout Rooms

6 different rooms on campus + Baxter Lecture Hall:

- About 5-10 min walk; please no food or drink in the breakout rooms

Tuesday, September 1:

- Baxter Lecture Hall: Exoplanets & Astrobiology
- Linde Hall 310: Cosmology
- Moore Lecture Hall B270: Compact Objects & Energetic Phenomena
- Moore Lecture Hall B280: Stars and Stellar Populations; Compact Objects & Energetic Phenomena
- Noyes 147: Galaxies; Galaxies & Cosmic Rays

Wednesday, September 2:

- Baxter Lecture Hall: Multi-Mission Capabilities; Multi Aperture Concepts
- Broad 100: X-Ray & UV
- Chen 130: Gamma Ray; Gravitational Waves & Fundamental Physics
- Linde Hall 310: Radio
- Moore Lecture Hall B270: Sub-mm FIR
- Moore Lecture Hall B280: UV Optical IR

Dabney Hall & Garden

- Coffee breaks and the opening reception will take place in Dabney Garden
- The posters are set up in Dabney Hall

BAE SYSTEMS

Caltech JPL

Logistics (III)



<https://www.caltech.edu/map/campus>



Extra Slides

ASTRA & Ad ASTRA Workshop



- APD is asking for community participation in ASTRA through the PAGs:
 - Cosmic Origins (COPAG)
 - Exoplanet Exploration (ExoPAG)
 - Physics of the Cosmos (PhysPAG)
- Each PAG has solicited the astronomy and astrophysics community for mission concept ideas. To accomplish this, each PAG is empowered to envision and use its own process.
- The Ad ASTRA workshop is one piece of the process, intended to bring the community together for face-to-face discussions of science priorities and potential mission concepts.
- Key point: the ASTRA studies will focus on science and mission architecture trade space, not specific mission concepts.
 - Focus on broad “mission concept bins” that span a reasonable trade space range, not “proposal” mission concepts



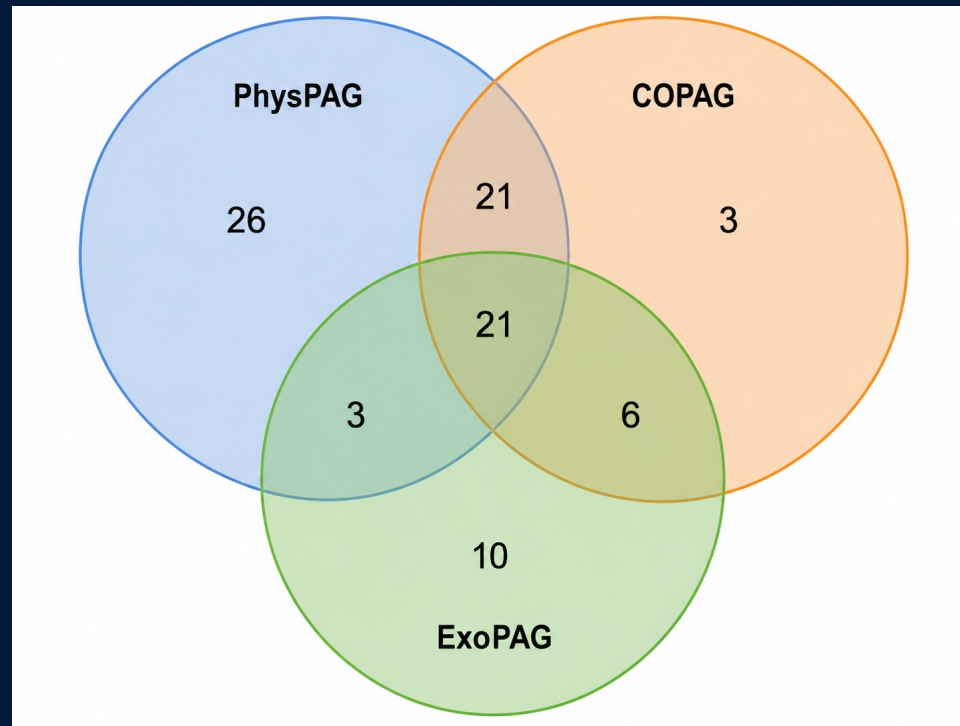
Workshop Goals

- This is a working meeting to provide inputs to the PAG ECs in categorizing ASTRA concepts
- Discuss current open science priorities/questions from strategic documents
 - *Astro 2020 Decadal Survey*
 - *Enduring Quests - Daring Visions* (2014) 30-year roadmap
- Discuss NEW science questions emerged from the last 6 years of astrophysics discoveries
- Identify common science and capabilities between the ASTRA mission concepts submitted or presented at this workshop
- Identify community science priorities and connect those priorities with mission concepts
- Identify potential opportunities with Industry, the community at-large, and Artemis Program

Each day ends with a broad community discussion led by breakout session moderators



Mission Concepts Statistics



Mandate and Deliverables for Day



1: Science

Focus on science questions and not on a mission concept description (as this is the focus of Day 2)

- What are your big (>\$1B) science questions?
- What measurements/capabilities are needed to address those questions?
- What unexpected science questions caught your attention and deserve more exploration?
- What did you not hear about today that surprised you and ought to be surfaced for consideration?



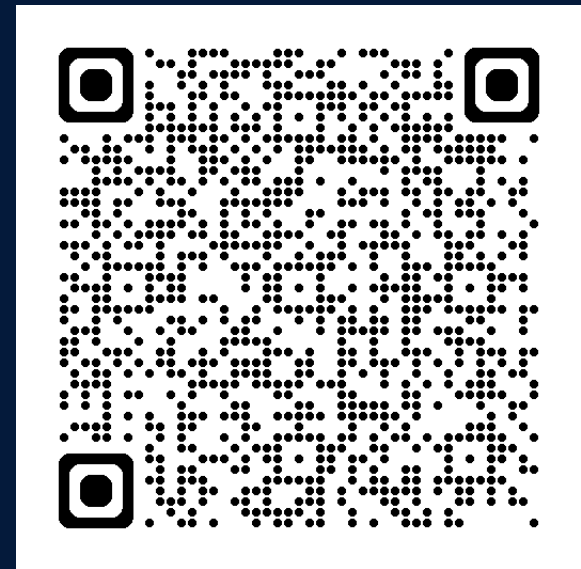
Have Questions?

Check Out the FAQs →

Current listing of submitted ASTRA
Initiative [Questions with Answers](#)

Have more Questions?

Submit Questions using the [Slido Tool](#) →



Mandate and Deliverables for Day

3: Community discussion



- Considering that the ASTRA trade space studies are intended to be broad (“surveyors”), where do you see opportunities to bring different science and capability exploration together under the umbrella of one study?



Jessica Gaskin



David R. Ardila

Ad ASTRA Workshop Science Organizing Committee

David R. Ardila (Exoplanet Program Office, Jet Propulsion Laboratory), David Ciardi (Caltech/IPAC-NExSci), Francesca Civano (Physics of the Cosmos Program Office, Goddard Space Flight Center), Ron Gamble (Cosmic Origins, Goddard Space Flight Center), Jessica Gaskin (NASA Headquarters), Brian Humensky (Physics of the Cosmos Program Office, Goddard Space Flight Center), Bernard Kelly (Physics of the Cosmos, Goddard Space Flight Center), Peter Kurczynski (Cosmic Origins Program Office, Goddard Space Flight Center), Eric Mamajek (Exoplanet Program Office, Jet Propulsion Laboratory), Swara Ravindranath (Cosmic Origins Program Office, Goddard Space Flight Center), Karl Stapelfeldt (Exoplanet Program Office, Jet Propulsion Laboratory)



Brian Humensky



Swara Ravindranath



Ron Gamble



Bernard Kelly



Stephanie Clark



Peter Kurczynski



Francesca Civano



Eric Mamajek



Karl Stapelfeldt



Rashied Amini



Elise Furlan



David Ciardi

Ad ASTRA Workshop Local Organizing Committee



David R. Ardila (Jet Propulsion Laboratory), Frank Aragon (Caltech/IPAC), Wendy Burt (Caltech/IPAC), David Ciardi (Caltech/IPAC), Catherine Clark (Caltech/IPAC), Stephanie Clark (Goddard Space Flight Center), David Cook (Caltech/IPAC), Elise Furlan (Caltech/IPAC), Alex Hui (Caltech/IPAC), Sean Kindt (Caltech/IPAC), Ryan Lau (Caltech/IPAC), Tiffany Meshkat (Caltech/IPAC), Teresa Molano (Caltech/IPAC), David Navarro (Caltech/IPAC), Eric Oh (Caltech/IPAC), Daniel (Piña) Piña-Muro (Caltech/IPAC), Narot Piric (Caltech/IPAC), Nina Pretty (Jet Propulsion Laboratory), Nancy Solis (Caltech/IPAC), Vivian U (Caltech/IPAC), Ashlee Zhang (Caltech/IPAC)

Thank you