



National Aeronautics and
Space Administration

The ASTRA Initiative Next Steps

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Ad ASTRA Workshop

Ad ASTRA Workshop Goals

- Identify the priority science and gaps
 - Astro2020 and strategic NASA docs
 - Science from current & future planned missions
 - New areas not previously considered
- Identify common science and capabilities, and high-level technology readiness
- Identify potential opportunities with Industry and the external-NASA community, and Artemis Program
- Identify community science priorities and connect those priorities with a small set of mission concepts for study



Strategic Mission Study Selection Schedule

03/2026	Community Announcement Release.
05/2026	Workshop on Innovation for Astrophysics Missions. A presentation will be provided to the community prior to the Community Science Ad ASTRA Workshop.
06/2026	248th AAS Meeting. An overview of the ASTRA Initiative will be presented in a Special Session. Updates to the X-Ray Flagship Study announced.
09/2026	NASA Community Science Ad ASTRA Workshop. A presentation will be given to the community by the end of the year.
12/2026	Joint PAG hybrid Presentation. A public presentation will be given by PAG representatives to the NASA Astrophysics Division Director and Deputy Director
01/2027	249th AAS Meeting. Mission concept study selections will be announced by the NASA Astrophysics Division Director during the Town Hall.
02/2027	Select Community Study Chairs & Release Nomination Announcement for Study Team membership
04/2027	Study Teams (STDT + Study Office members) selected. Studies are fully functional by May/June.

- NASA Astrophysics Leadership will take the PAGs' recommendation under advisement, with the **final decision being made by the Division Director**.
- Programmatic factors regarding budget and existing and planned mission landscape will factor into final selection.

Preparing for the Future

THEN

Habitable-Exoplanet Imaging Mission,
UV/O/IR Surveyor, X-Ray Surveyor,
Far-Infrared Surveyor

Large Mission Concept Studies



NOW

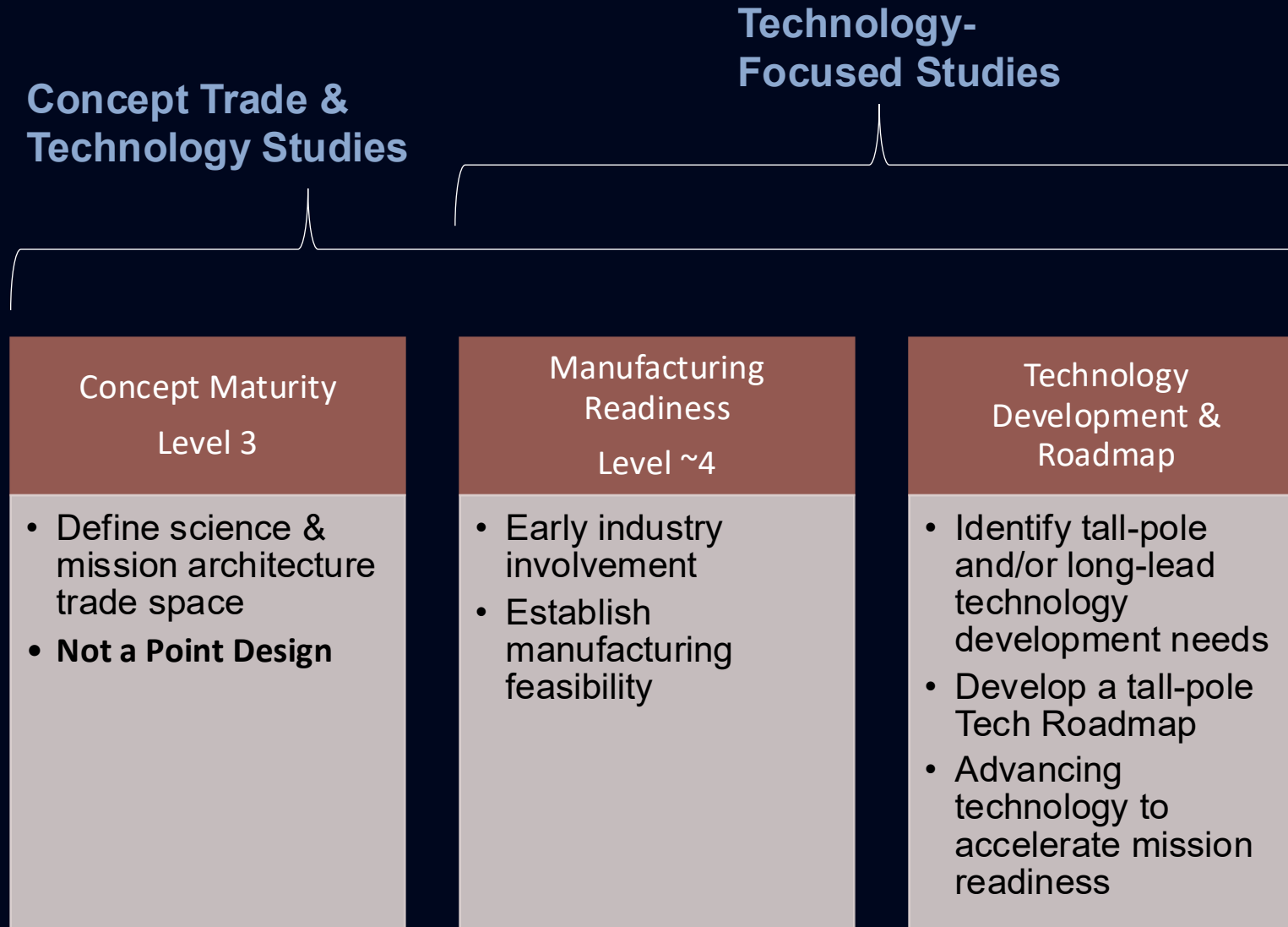
X-Ray, Far-IR Flagship, and 4-6 (>\$1B)
Strategic Missions

Concept Trade Studies





Science First!



The Six Dimensions of Concept Maturity



- Using CMLs helps concept teams understand the work that needs to be done in parallel during pre-Phase A
 - The Large Mission Study Report recommended using CMLs
 - Multiple NASA centers have now started using CMLs in formulation
- Each of the six dimensions of concept maturity has its own set of expected scope and artifacts at each CML
- All dimensions need to be advanced in parallel to a similar depth – if one gets too far ahead, the concept can become fragile and need rework

Concept

Maturity

Level

LEGEND:

IDEA



CONCEPT
PROTOTYPE



POINT DESIGN

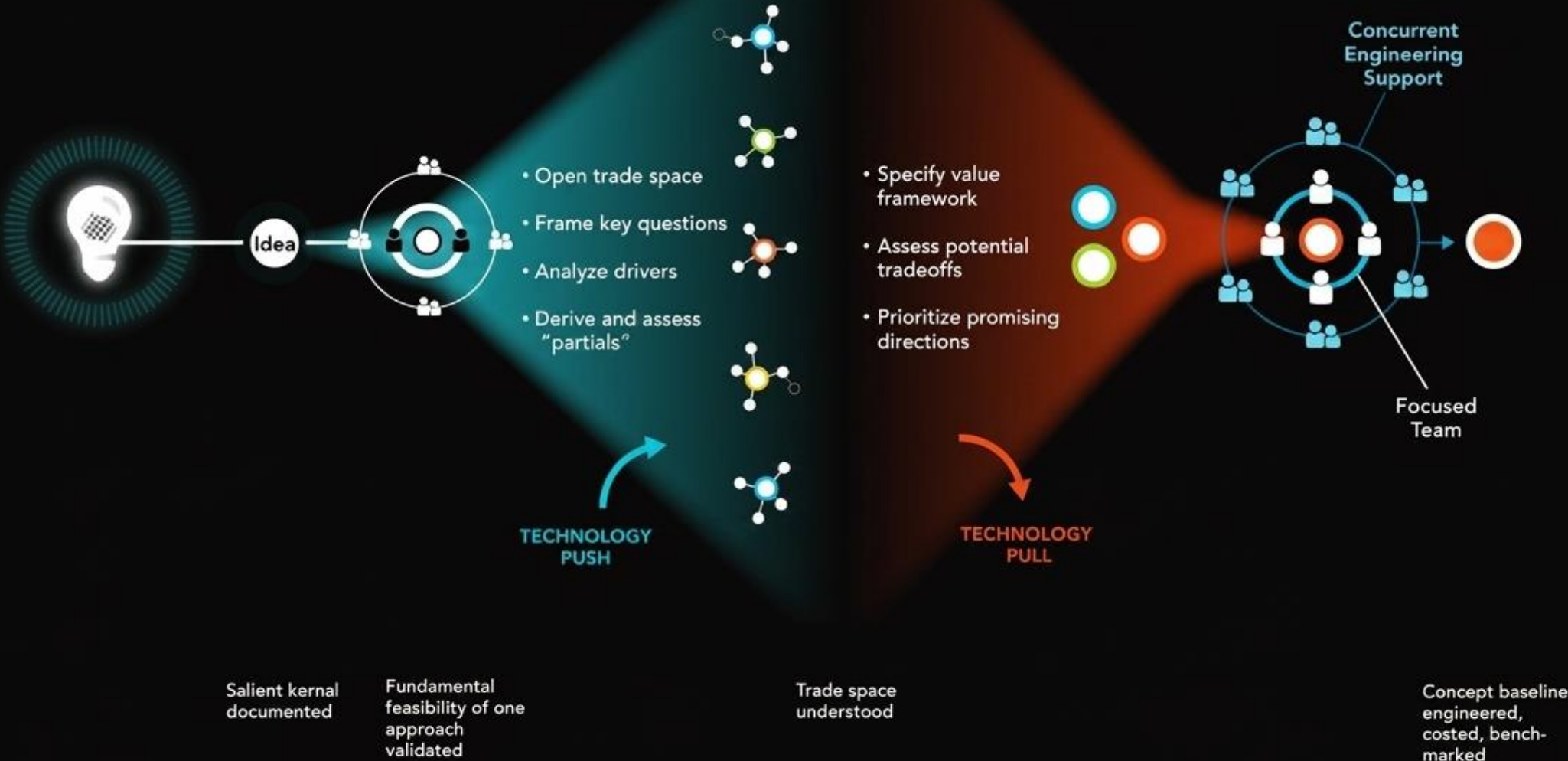
CML 1

CML 2

CML 3

CML 4

CML 5



X-Ray Flagship Mission Study Update

- STDT Community Co-Chairs Selected
- Study Office key personnel have been confirmed from SAO, MSFC, and GSFC
- A call for nominations for the X-Ray STDT will be released soon
 - Will select ~10 individuals to serve
 - Small honorarium
 - Travel
- Industry Call to support the study, optics dev, and manufacturing plan is being developed.
- International ex-officio members to be invited



Megan Eckart,
Director, Space
Science Institute, LLNL



Dave Pooley
Professor, Physics &
Astronomy, Trinity U.

Expected Start: FY27 (post 10/2026)
PoP: ~4 years

Far-IR Flagship Mission Study

- Awaiting the resolution of the Probe competition to determine what level of study to initiate.
- We are hoping to make an announcement before the end of the fiscal year.



<https://origins.ipac.caltech.edu/>



<https://prima.ipac.caltech.edu/>

In Work

- STDT Charter
- Study Management Plan
- SoW for Industry Participation
- Tailoring for Manufacturing Readiness Level 4
- Architecture/Trade Space Cost Guidance
- Study Support Tools (document sharing and archiving, and team communication)

Completed

- Letter to Community asking for STDT Nominations for the X-Ray Study (to be released Fall 2026)
- Tailored guidance on CML 3

THANK YOU!

Science Organizing Committee

- David R. Ardila (ExEP)
- David Ciardi (Caltech/IPAC-NExSci)
- Francesca Civano (PhysCOS)
- Ron Gamble (COR)
- Jessica Gaskin (NASA Astrophysics)
- Brian Humensky (PhysCOS)
- Bernard Kelly (PhysCOS)
- Peter Kurczynski (COR)
- Eric Mamajek (ExEP)
- Swara Ravindranath (COR)
- Karl Stapelfeldt (ExEP)



Caltech



Caltech JPL

BAE SYSTEMS

Local Organizing Committee

- David R. Ardila (ExEP)
- Frank Aragon (Caltech/IPAC)
- Wendy Burt (Caltech/IPAC)
- David Ciardi (Caltech/IPAC-NExSci)
- Catherine Clark (Caltech/IPAC)
- Stephanie Clark (PhysCOS/COR)
- David Cook (Caltech/IPAC)
- Elise Furlan (Caltech/IPAC)
- Sean Kindt (Caltech/IPAC)
- Ryan Lau (Caltech/IPAC)
- Tiffany Meshkat (Caltech/IPAC)
- Eric Oh (Caltech/IPAC)
- Narot Piric (Caltech/IPAC)
- Vivian U (Caltech/IPAC)
- Ashlee Zhang (Caltech/IPAC)
- David Navarro (Caltech/IPAC)
- Teresa Molano (Caltech/IPAC)
- Nancy Solis (Caltech/IPAC)
- Alex Hui (Caltech/IPAC)
- Daniel Piña-Muro (Caltech/IPAC)
- Nina Pretty (ExEP)
- Cindy Kim (Caltech/IPAC)

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Cosmic Origins Science

The Astrophysics Strategic Technology & Research Accelerator (ASTRA) Initiative

To maintain US leadership, NASA's Astrophysics Division (APD) is launching the Astrophysics Strategic Technology and Research Accelerator (ASTRA) Initiative.

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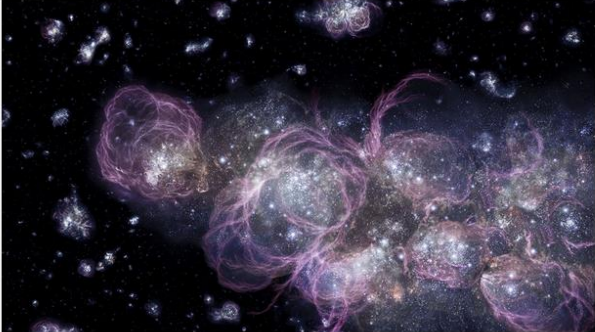
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About the ASTRA Initiative

How does the universe work? How did we get here? Are we alone?

At every stage, NASA will collaborate with industry, academia, and international partners to advance necessary technologies, manufacturing capabilities, and reduce costs.

ASTRA aims to reduce the total cost, time-to-science, and schedule risk of future strategic missions, aligning with the guidance from Astro2020, LSSM, and AMP.



This is an artist's impression of how the very early universe (less than 1 billion years old) might have looked when it went through a voracious onset of star formation, converting primordial hydrogen into myriad stars at an unprecedented rate. Back then the sky would have looked markedly different from the sea of quiescent galaxies around us today. The sky is ablaze with primeval starburst galaxies; giant elliptical and spiral galaxies have yet to form. Unlike today there is very little dust in these galaxies, because the heavier elements have not yet been cooked up through nucleosynthesis in stars. Recent analysis of Hubble Space Telescope deep sky images supports the theory that the first stars in the universe appeared in an abrupt eruption of star formation, rather than at a gradual pace.

Credit: NASA, STScI A. Schaller

National Aeronautics and
Space Administration



The Future of NASA Astrophysics



Find out more about the
Astrophysics Strategic
Technology & Research
Accelerator (ASTRA) Initiative.

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