

National Aeronautics and  
Space Administration



# EXPLORE SOLAR SYSTEM & BEYOND

## NASA Headquarters Update

ExoPAG #26 | June 11, 2022

**Hannah Jang-Condell** ([hannah.jang-condell@nasa.gov](mailto:hannah.jang-condell@nasa.gov))

Exoplanet Exploration Deputy Program Scientist, ExoPAG Executive Secretary  
Astrophysics Division, Science Mission Directorate



# An Overview of the ExoPAG





# Exoplanet Program Analysis Group (ExoPAG)

<https://exoplanets.nasa.gov/exep/exopag/overview>

- The ExoPAG is led by a Chairperson appointed from the exoplanet community to serve a 3-year term.
- The ExoPAG Chair is supported by a 10-12-member Executive Committee (EC)
  - EC members are selected to reflect a cross-section of the exoplanet exploration stakeholder community;
  - EC members are solicited annually and appointed to rotating 3-year terms.
- Together, the ExoPAG Chair and EC comprise a steering group that is responsible for keeping the community informed of ongoing activities and opportunities within the ExoPAG, capturing and organizing community input, and overseeing ExoPAG analyses.
- All members of the community are encouraged to consider nominating themselves or a colleague to serve on the ExoPAG EC. Service on the EC provides an excellent opportunity to:
  - Initiate a Science Analysis/Interest Group.
  - Review and contribute to the ExEP Science and Technology Development Gap Lists.
  - Contribute to APD's efforts to increase diversity, equity, and inclusion at NASA and in the community.
  - Interact with excellent colleagues.
  - Inspire the next generation.
  - Have an impact within our community.

# The ExoPAG Executive Committee

Name	Home Institution
Michael Meyer (Chair)	Univ. of Michigan
Ilaria Pascucci (incoming Chair 8/22)	Univ. Arizona
Natasha Batalha	NASA ARC
Jacob Bean	Univ. of Chicago
Michael Bottom	Univ. Hawaii
Knicole Colon	NASA GSFC
John Debes	STScI
Diana Dragomir*	Univ. of New Mexico
Erin May*	JHU Applied Physics Lab
Bertrand Mennesson*	JPL
Laura Schaefer	Stanford Univ.
John Wisniewski*	Univ. of Oklahoma

\*indicates new EC member as of 2022

Many thanks to outgoing EC members Tiffany Kataria, Josh Pepper, & Dmitry Savransky!

## Programmatic Support:

- Hannah Jang-Condell, NASA HQ Executive Secretary, NASA POC
- Doris Daou, NASA HQ – Planetary Science Division Liaison
- Richard Eckman, NASA HQ – Earth Science Division Liaison
- Galen Fowler, NASA HQ – Heliophysics Division Liaison
- Exoplanet Exploration Program Office, JPL - Logistics



# NASA HQ Update

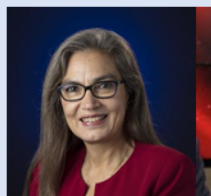


# NASA Astrophysics Division

## Division Director

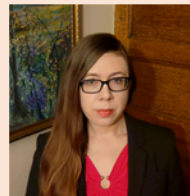


**Paul Hertz**  
Astrophysics Division  
Director



**Sandra Cauffman**  
Astrophysics Division  
Deputy Director

## Program Executives



**Rachele Cocks**  
Dep COSI, Dep  
Ariel/CASE CubeSats



**E. Lucien Cox**  
SOFIA, GUSTO,  
XRISM, ExEP



**Julie Crooke**  
GOMAP



**Ed Griego**  
Roman, CGI



**Shahid Habib**  
PCOS/COR, ARIEL,  
Athena, Euclid, LISA,  
UltraSat



**Janet Letchworth**  
Operating Missions,  
Decadal



**Mark Sistilli**  
Explorers Program  
SPHEREx, COSI  
Balloons

## Cross Cutting



**Eric Smith**  
Chief Scientist  
Webb  
Precursor Sci



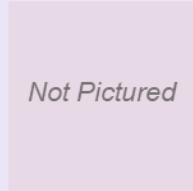
**Vacant**  
Assoc Dir for Flight  
ASM Program Manager



**Mario Perez**  
Chief Technologist  
SAT, RTF, ISFM, Swift



**Omid Noroozian**  
Deputy Chief  
Technologist



**Lisa Wainio**  
Information Manager,  
Public Affairs Liaison

## Administrative Support



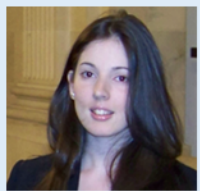
**Jennifer Baker**  
Administrative  
Assistant



**Ingrid Farrell**  
Program Support  
Specialist



**Kelly Johnson**  
Administrative  
Assistant



**Sara Schwartzman**  
Program Support  
Specialist

## Program Scientists



**Manuel Bautista**



**Dominic Benford**  
Roman, CGI, APRA  
Lead



**Terri Brandt**  
COSI Dep  
APRA Dep  
Pioneers Dep  
Precursor Sci Dep



**Valerie Connaughton**  
APRA (High Energy)  
XRISM, UltraSat, XMM,  
TDAMM, PCOS  
Program



**Antonino Cucchiara**



**Michael Garcia**  
APRA (UV/Visible),  
SmallSats/Pioneers  
Hubble



**Thomas Hams**  
APRA (CR, Fund.  
Phys.)  
Rockets/Balloons  
GUSTO, LISA



**Hashima Hasan**  
Education/Comms,  
Citizen Science, Archives,  
Advisory Committees,  
NuSTAR, Keck



**Douglas Hudgins**  
ExEP Program  
ADAP Lead  
TESS Dep, ARIEL



**Stefan Immler**  
Astrophysics  
Research Program  
Mgr, Chandra, ART-  
XC



**Hannah Jang-Condell**  
XRP, TESS  
ExEP, Explorers



**Patricia Knezek**  
Explorers Program  
Astrophysics Probe  
SOFIA, Hubble Fellows



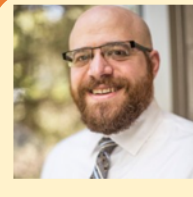
**William Latter**  
APRA (Lab Astro)  
SPHEREx, Fermi



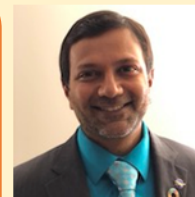
**Sangeeta Malhotra**  
Roman/CGI Dep  
ATP/TCAN Dep



**Roopesh Ojha**  
Data Lead, NICER,  
HEC, AI/ML



**Joshua Pepper**  
Deputy TESS, Deputy  
ADAP, Deputy ExEP



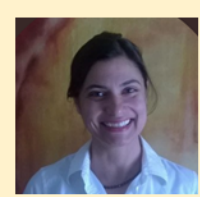
**Kartik Sheth**  
Inclusion Plans  
Technical assessments



**Linda Sparke**  
2021 MIDEX/MO,  
Archives, COSI



**Eric Tollestrup**  
APRA (IR/Submm)  
Euclid, IXPE, COR  
Program



**Sanaz Vahidinia**  
ATP/TCAN Lead



# Join the NASA Team at Headquarters

NASA is seeking permanent and visiting Ph.D.-level scientists to serve as Program Scientists in the Astrophysics Division (APD) at NASA Headquarters in Washington, DC. With a budget of \$1.6 billion annually, the Division is responsible for the nation's space-based astrophysics program.

## NASA Program Scientists

- manage scientific research grants programs and the proposal review process;
- serve as the Headquarters science lead for missions;
- implement NASA's response to the 2020 Decadal Survey;
- gain insight into Federal astrophysics policy and programs;
- run scientific programs with multimillion-dollar budgets, and
- contribute to a culture of diversity, equity, and inclusion.

This summer (date TBD), NASA will advertise for program scientists across SMD.

- The ad will be open on USAJobs.gov for <5 days
- Subscribe to USAJobs.gov for an alert
- NASA will advertise through mailing lists (next page) and AAS Job Register

This summer (date TBD), NASA will advertise for astrophysics visiting scientists

- Visiting scientists spend 2-6 years at NASA before returning to their permanent job
- NASA will advertise through mailing lists (next page) and AAS Job Register



# APD Director Transition

Paul Hertz will be stepping down this summer after more than 10 years as Director of Astrophysics (the best job at NASA)

Hertz is the longest serving Director of Astrophysics in the history of NASA

Once the new Director of Astrophysics is in place, Hertz will move to the SMD Front Office as Senior Advisor to the SMD Associate Administrator

The application period closed on March 21, 2022

Who will lead NASA astrophysics in the upcoming era of increasing inclusion and diversity, growing R&A, Webb science, Roman development, exoplanet characterization, time domain and multi-messenger astrophysics, dark energy and dark matter, first Astrophysics Probe, more Explorers / Pioneers / cubesats, future great observatories, and realizing Decadal Survey priorities?



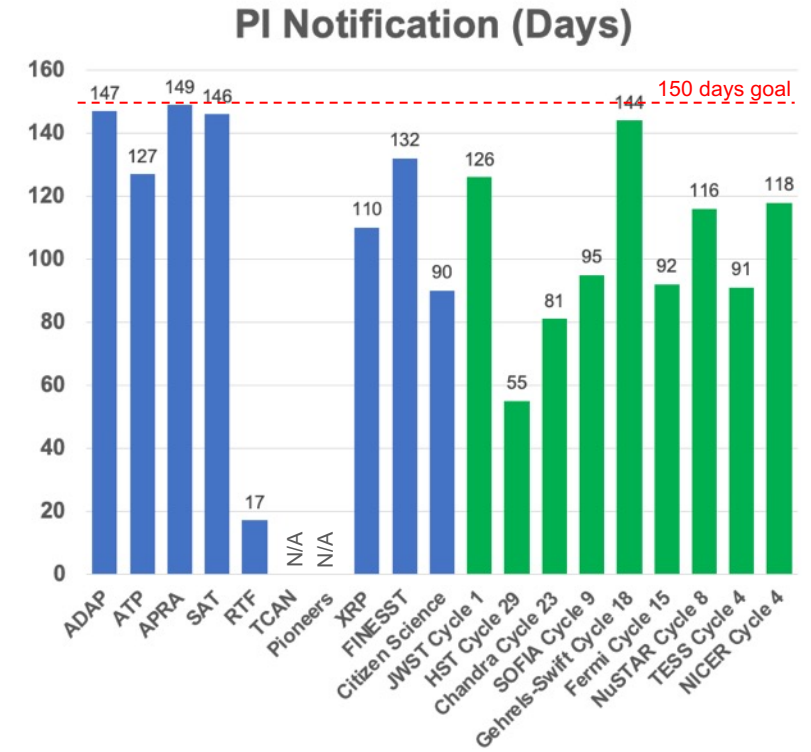
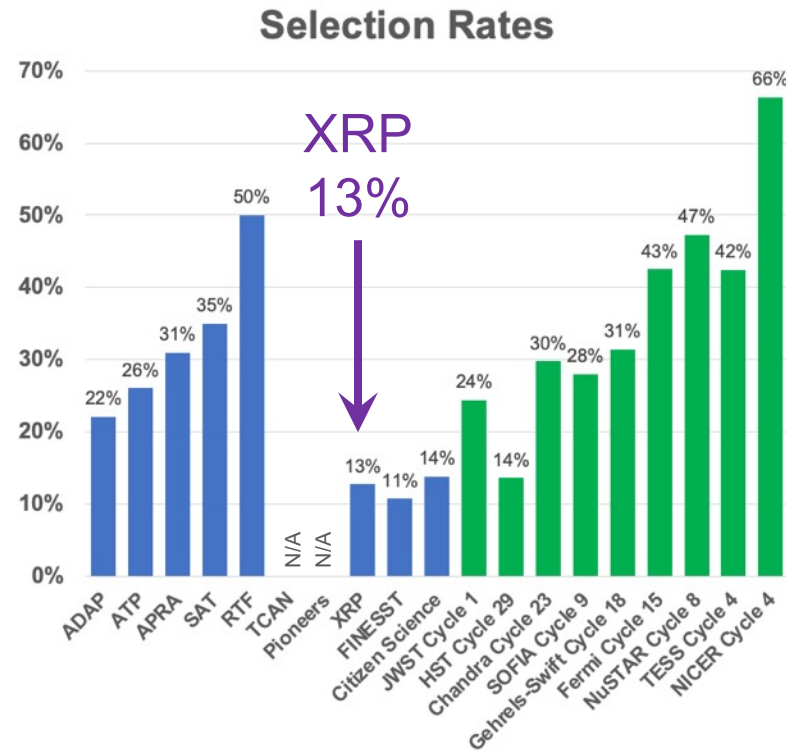
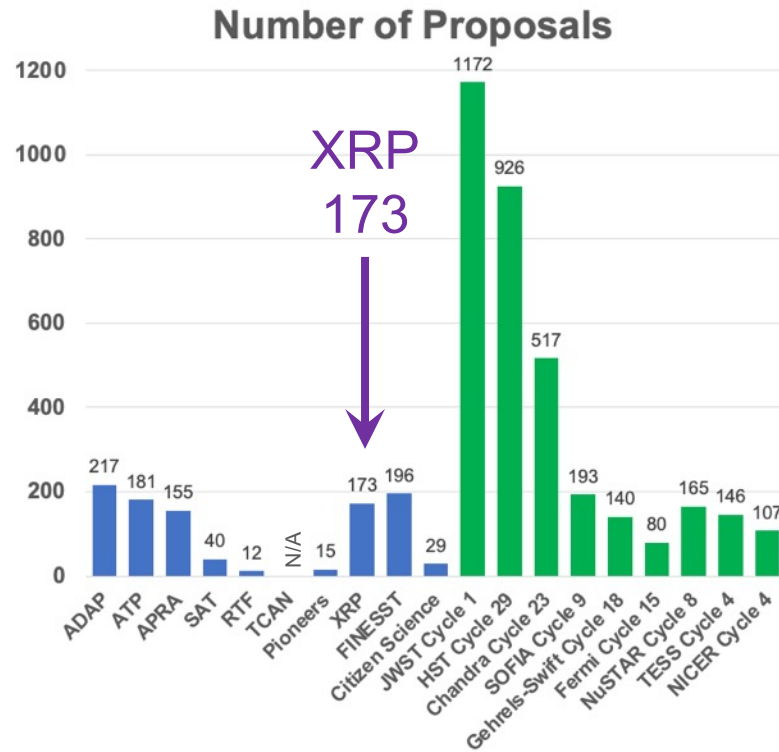


# Research Program Update



# Astrophysics R&A Selection Rates

June 2021-2022



R&A: 1,018 proposals  
 GO/GI: 3,446 proposals  
 Total: 4,464 proposals

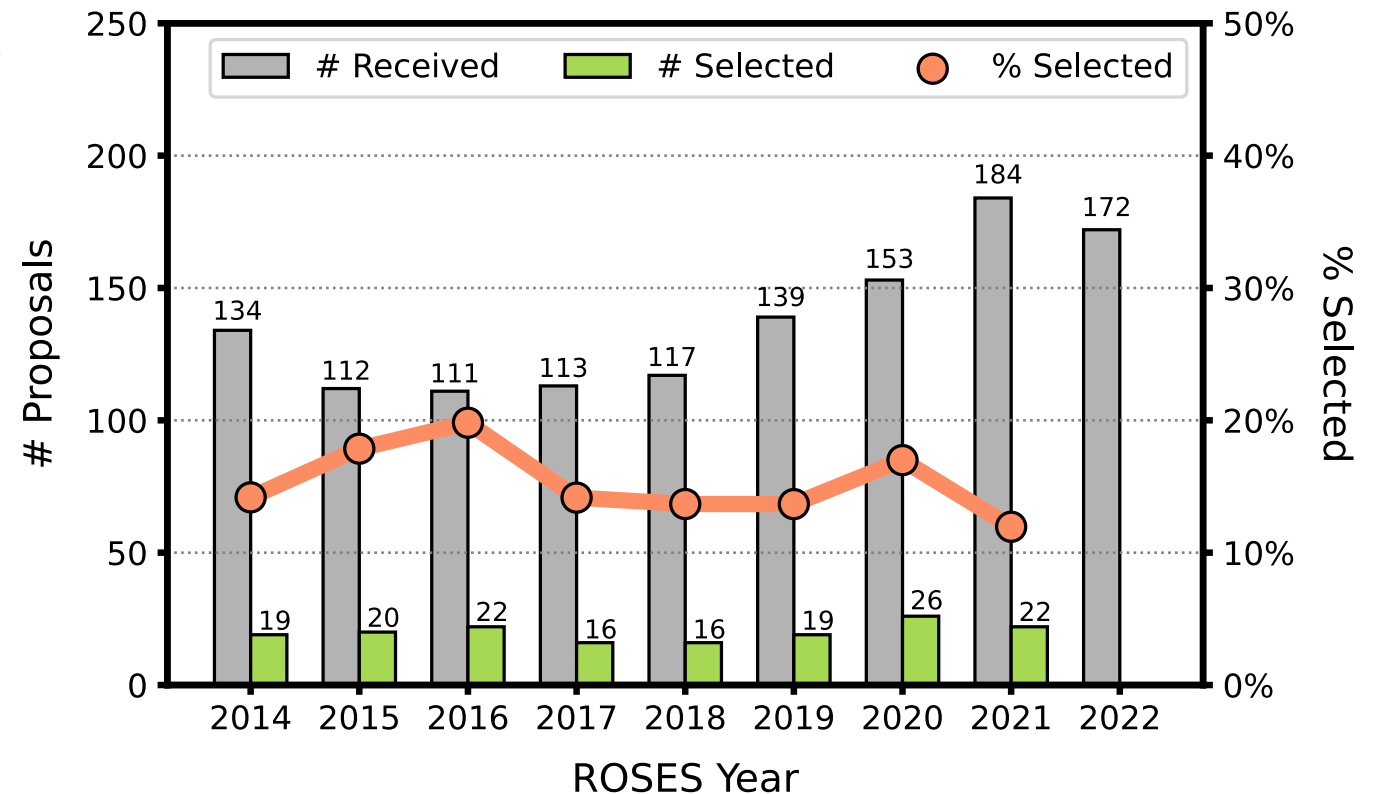
R&A: 20%  
 GO/GI: 27%  
 Average: 25%

80% of PI notification:  
 R&A: 147 days  
 GO/GI: 122 days

# Exoplanets Research Program (XRP) Updates

- Beginning with ROSES-2020, exoplanet research elements from ADAP, ATP, & APRA-Lab Astro have been moved into XRP. Exoplanet technology development remains in APRA
- Beginning with ROSES-2021, XRP proposals are reviewed with Dual-Anonymous Peer Review (DAPR)
- XRP submissions down slightly from last year – other R&A programs in Astro are also seeing decreases this year

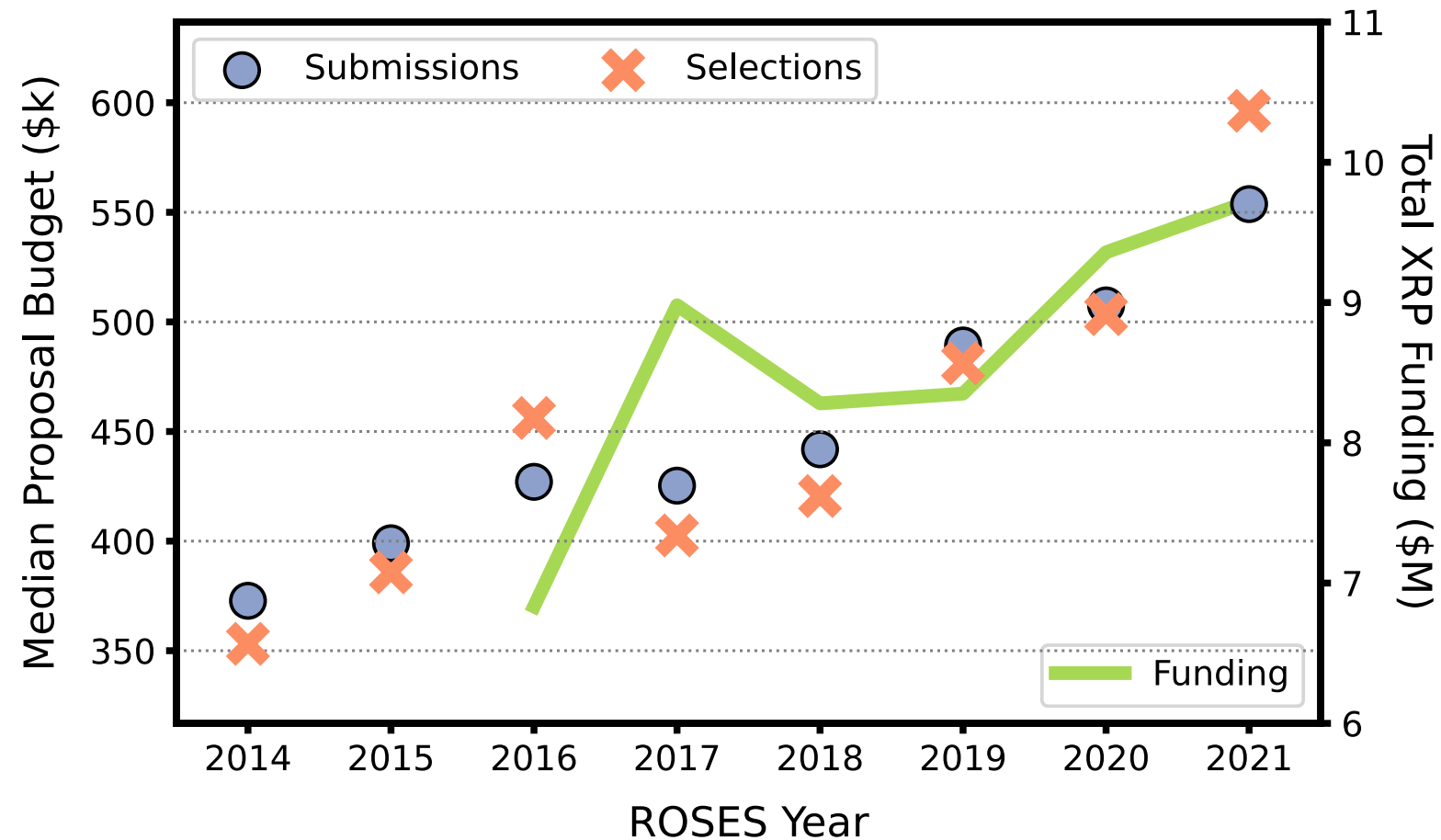
XRP Selections Over Time



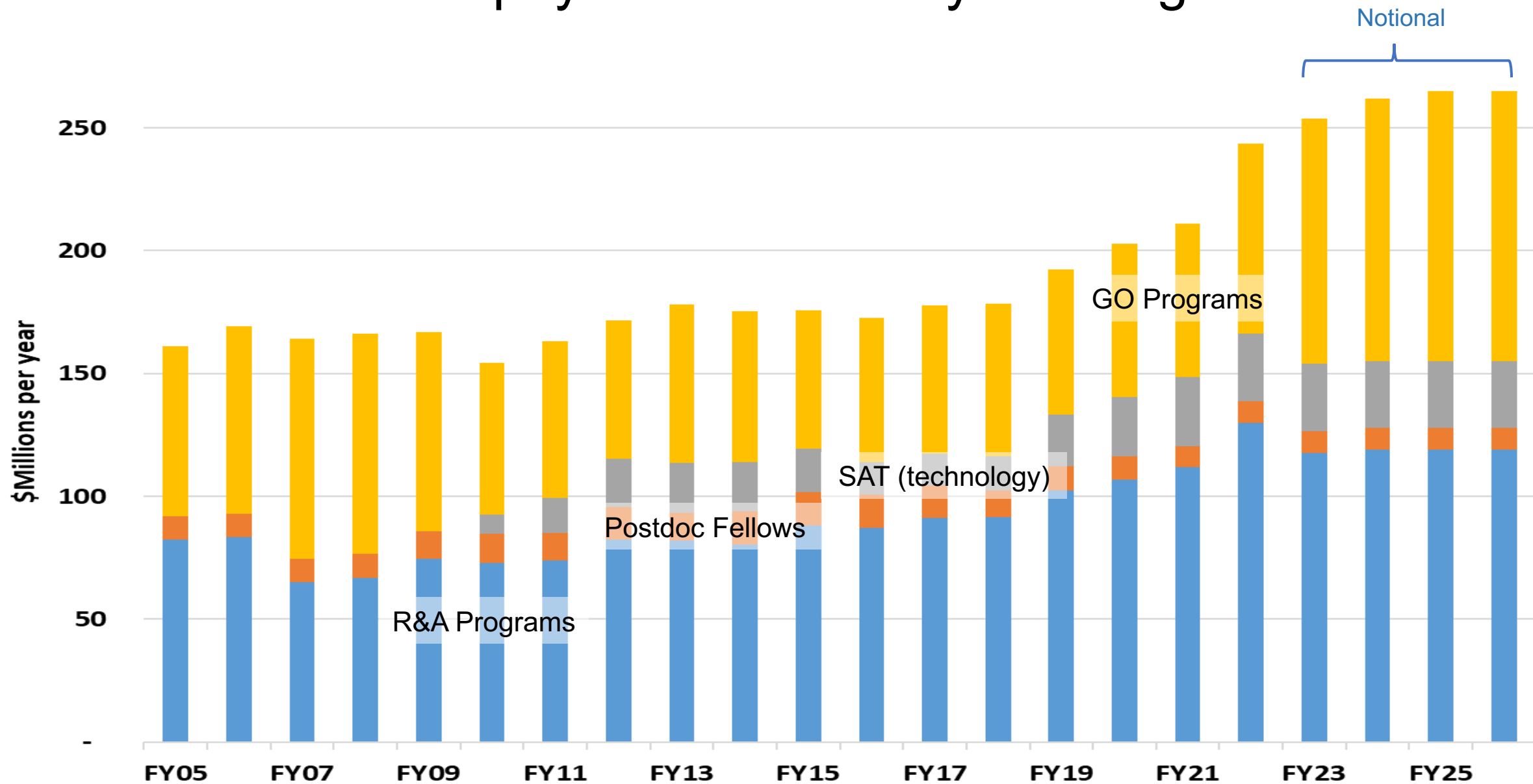
# Exoplanets Research Program Budgets

Budgets of XRP proposals are growing faster than total XRP funding

## XRP Budgets & Funding Over Time



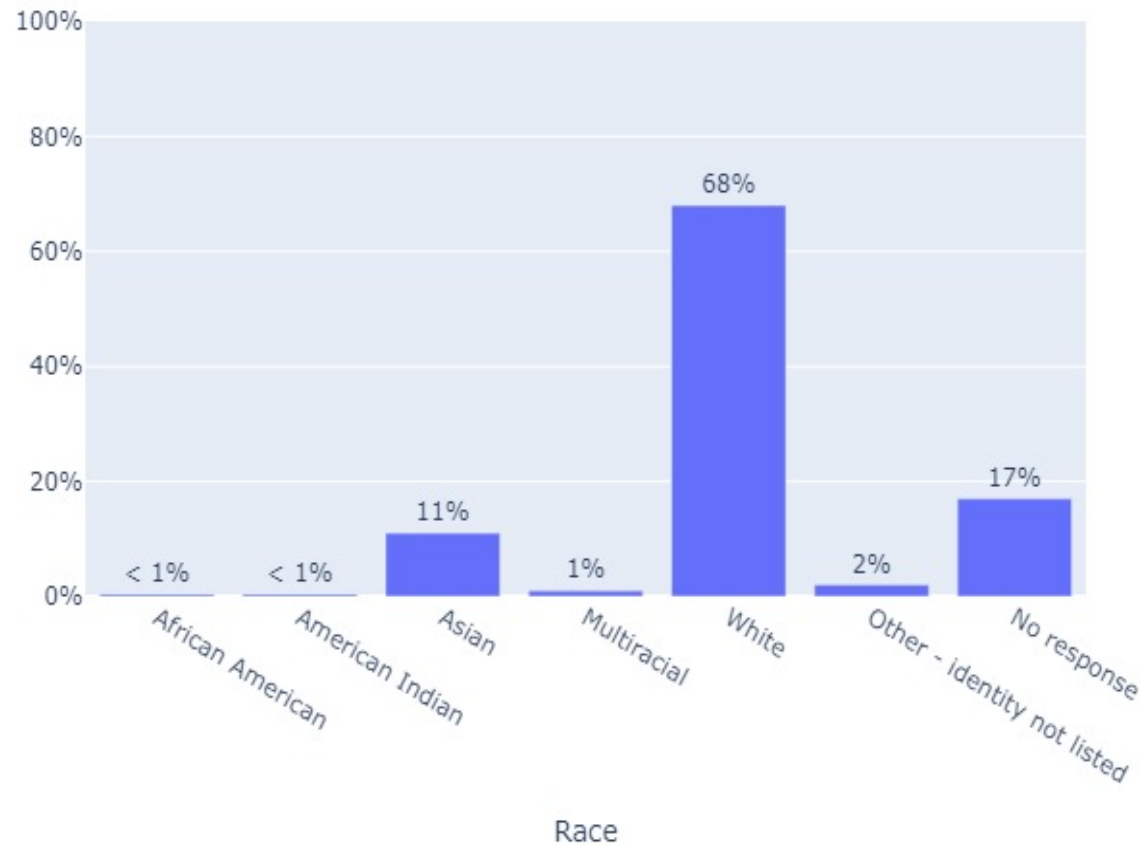
# Astrophysics Community Funding



# APD's R&A Proposal Pool: Race and Ethnicity

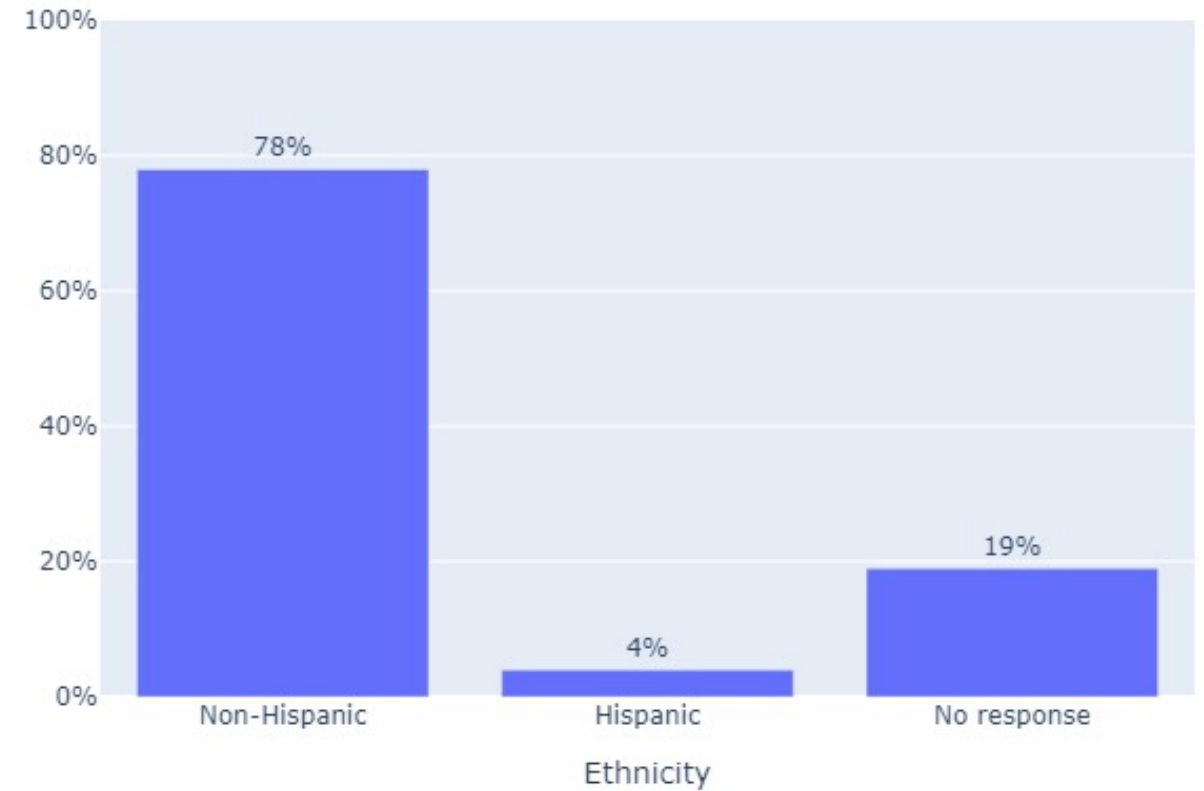
**Race of Submitted APD PIs**

N = 3553 | Missing data = 53 | 2014 - 2019



**Ethnicity of Submitted APD PIs**

N = 3553 | Missing data = 53 | 2014 - 2019



# 2022 Astrophysics Research Program Elements

## ROSES-22

### Supporting Research and Technology

- Astrophysics Research & Analysis (APRA) \*
- Strategic Astrophysics Technology (SAT) \*
- Theoretical and Computational Astrophysics Networks (TCAN) \*
- Roman Technology Fellowships (RTF)
- Precursor Science Investigations for Astro2020 DS \*/\*\* **New**

### Data Analysis

- Astrophysics Data Analysis (ADAP) \*\*
- GO/GI programs for Fermi, Swift, NuSTAR, TESS, NICER \*\*

### Mission Science and Instrumentation

- Astrophysics Pioneers (suborbital science investigations) \*
- Suborbital payloads solicited through APRA \*
- LISA Preparatory Science \*
- Roman Research and Opportunities (moved from ROSES-2021) **New**
- XRISM Guest Scientist (XGS, moved from ROSES-2021) \*\* **New**

### Cross Divisional

- Exoplanets Research Program (XRP) \*\*
- Topical Workshops, Symposia and Conferences (TWSC)
- Citizen Science Seed Funding Program
- Graduate Student Research Awards (FINESST)

## Solicited Separately

- GO/GI/Archive/Theory programs for Hubble, Chandra, SOFIA, Webb \*\*
- NASA Hubble Fellowship Program (NHFP)
- NASA Postdoctoral Program (NPP)
- Support for XMM-Newton U.S. PIs selected by ESA

## Not solicited in ROSES-22

- Astrophysics Theory Program (ATP), every other year
- Astrophysics Explorers U.S. PIs (APEX USPI) is no longer solicited separately, now part of Astrophysics Research & Analysis (R&A)

### Notice:

ROSES-22 was released mid-February 2022

\* Proposals will require an inclusion plan for creating and sustaining a positive and inclusive working environment.  
Stay tuned for future announcement

\*\* Proposals evaluated using dual-anonymous peer reviews

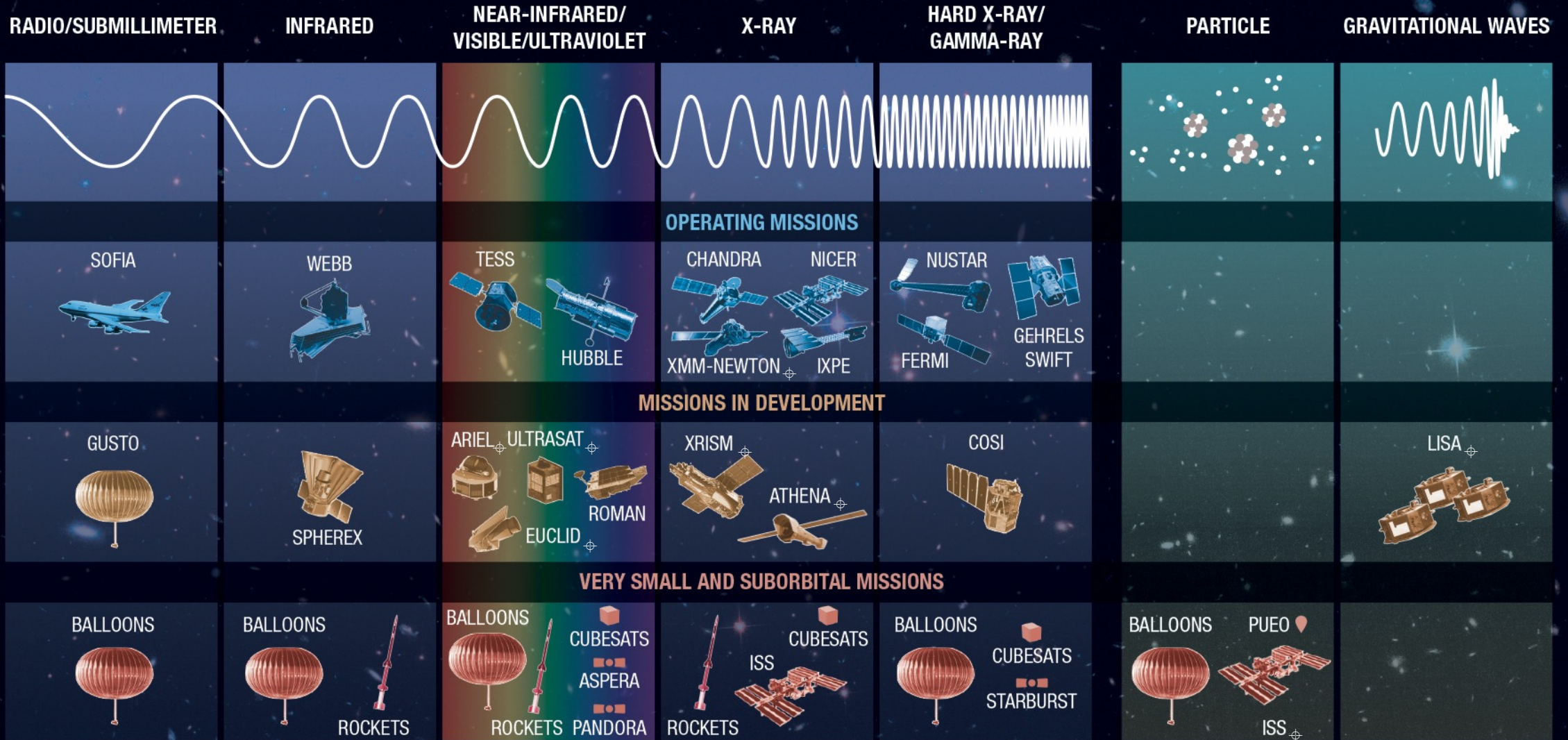


# Mission Program Update





# ELECTROMAGNETIC SPECTRUM



5 balloon payloads  
2 sounding rocket payloads

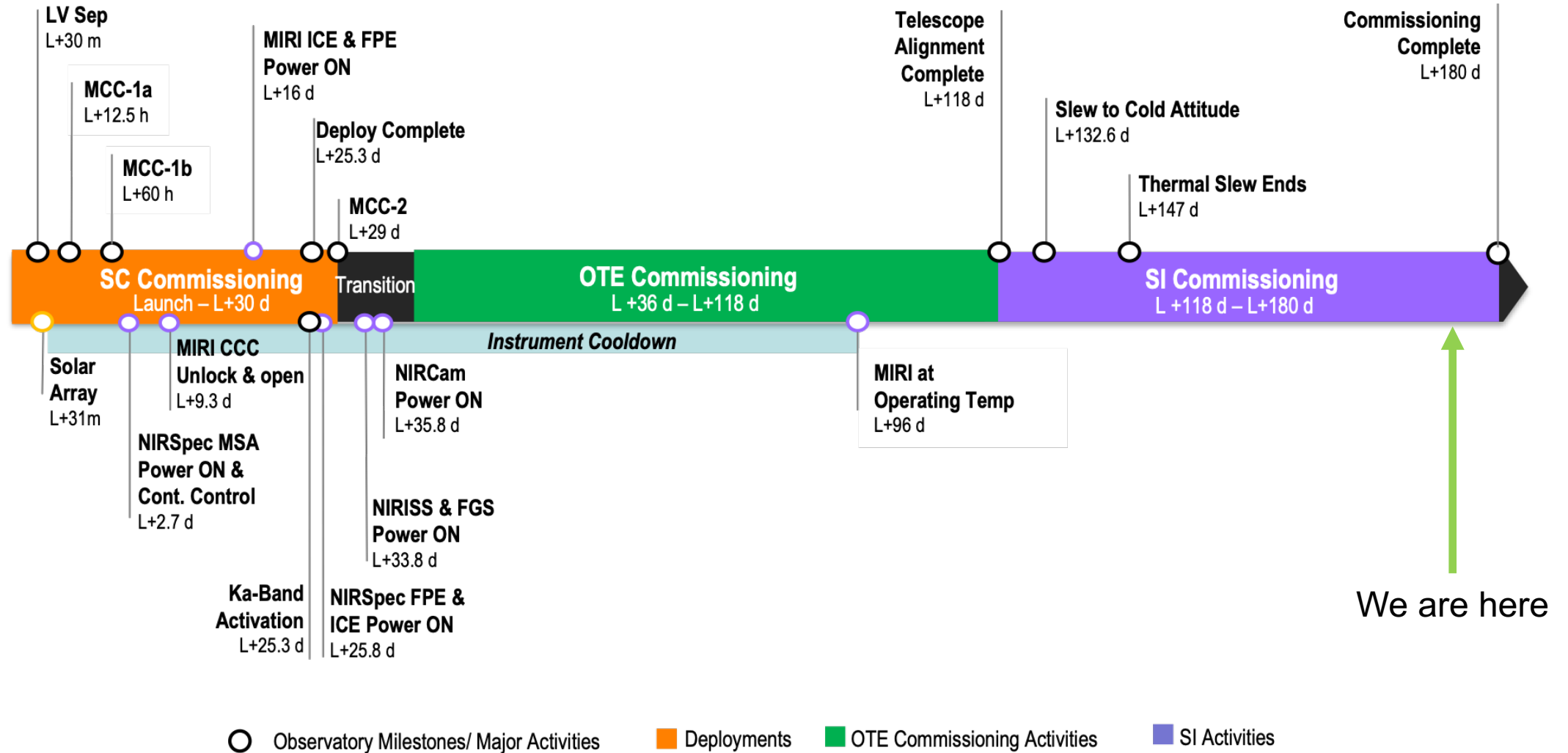
2 Pioneers smallsats  
6 balloon payloads  
2 rocket payloads  
3 cubesats

1 Pioneers smallsat  
4 balloon payloads  
4 sounding rocket payloads  
2 cubesats 1 ISS experiment

1 Pioneers balloon  
4 balloon payloads  
1 ISS experiment

March 2022

# JWST Commissioning Status



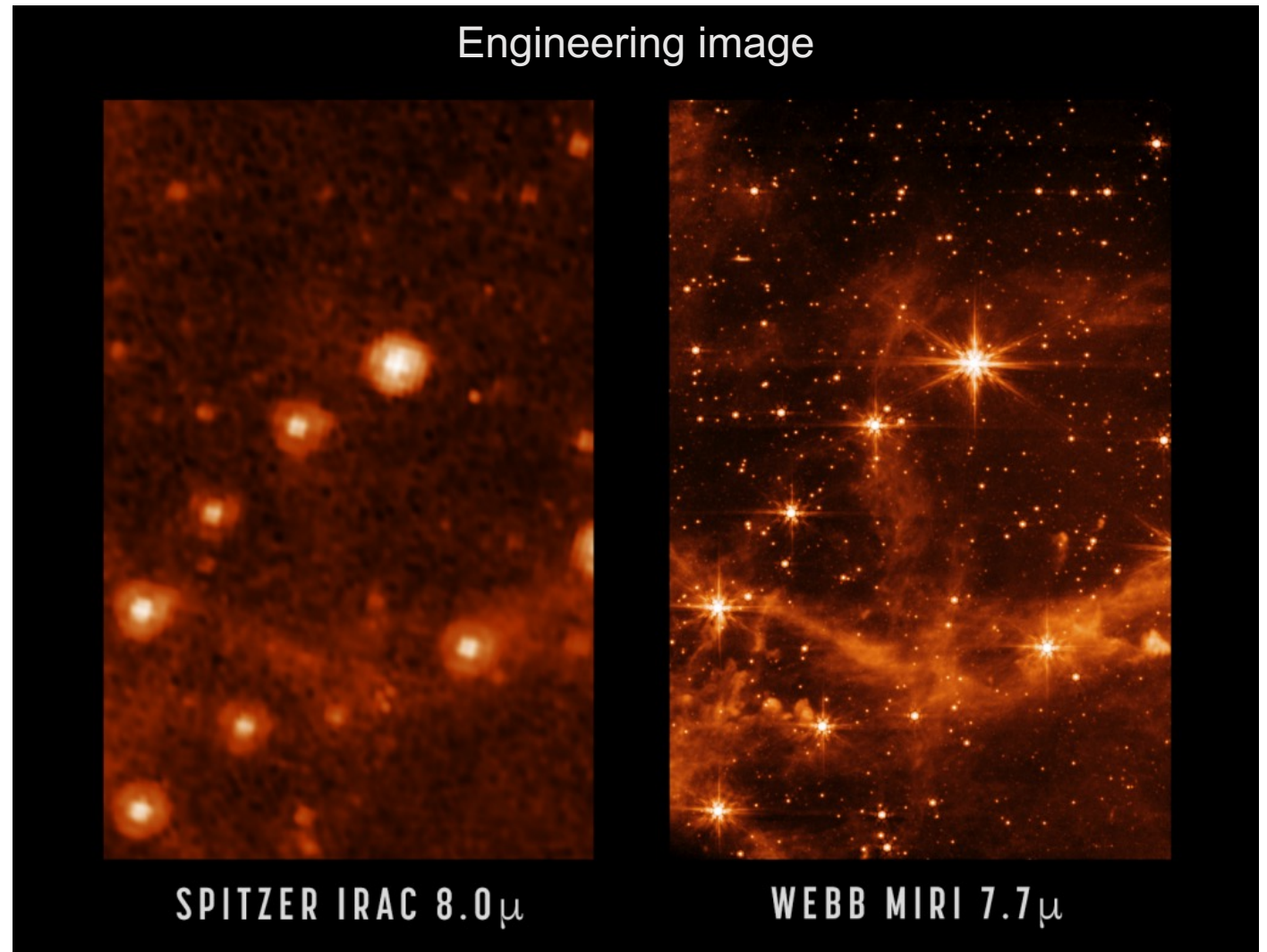
# JWST

First full-color images and spectroscopic data to be released on July 12, 2022

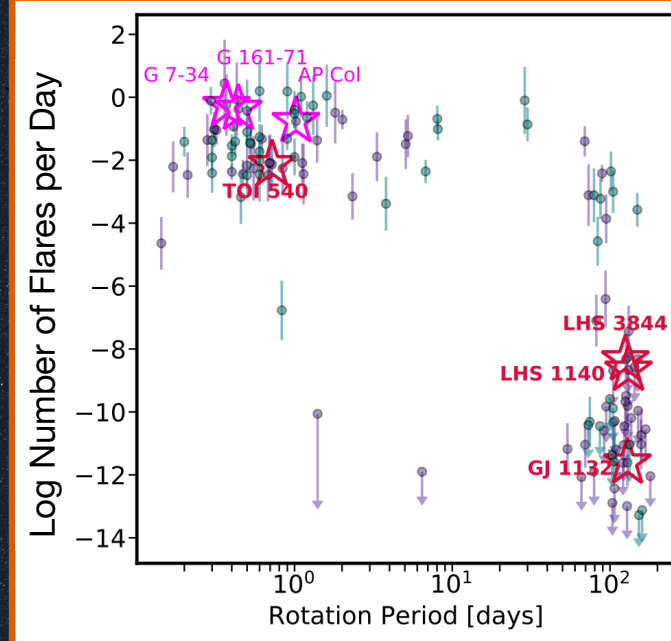
Webb Space Telescope  
Town Hall  
Tue 14 June, 6:30 pm,  
Hall C

More information

- JWST home page: <https://www.nasa.gov/webb>
- Blog: <https://blogs.nasa.gov/webb/>
- Where is Webb? <https://jwst.nasa.gov/content/webbLaunch/whereIsWebb.html>



# TESS: Transiting Exoplanet Survey Satellite



TESS observations of mid-to-late M dwarfs reveal a common power-law exponent for their flare frequency distribution, pointing to a common mechanism for production of flares on fully convective M dwarfs (Medina et al., 2022)

## Where is TESS pointing now?: Observation Sector 52

Orbit 1: May 18, 2022 - May 30, 2022

Orbit 2: May 31, 2022 - June 12, 2022

Planet Count: **217 confirmed planets**

- \* 84 with radii < 2.5 R<sub>Earth</sub>
- \* 127 with radii > 2.5 R<sub>Earth</sub>
- \* 6 with unknown radii

**5,725 candidate planets**

Publication Count: 993 submitted, 868 peer-reviewed  
(41% exoplanets, 59% astrophysics)

Updated: June 1, 2022

## Galactic Kinematics and Observed Flare Rates of a Volume-Complete Sample of Mid-to-Late M-dwarfs: Constraints on the History of the Stellar Radiation Environment of Planets Orbiting Low-mass Stars (Medina et al., 2022, submitted on arXiv)

- A volume-complete, nearly all-sky sample of 219 single stars within 15 parsecs and masses between 0.1-0.3 solar masses was observed during the TESS prime mission.
- In the above figure, purple and teal points are stars observed by TESS in the southern and northern ecliptic hemisphere, transiting planet hosts are marked as red stars, and members of young moving groups are marked as magenta stars.
- This study found a common value for the exponent of the flare frequency distribution for the sample.
- It is estimated that the average age at which these stars transition from the saturated to the unsaturated flaring regime is  $2.4 \pm 0.3$  Gyr.
- This work provides insight into the stellar radiation environment and its history, which benefits understanding the results of current and future exoplanet atmospheric studies.



# TESS Senior Review Update

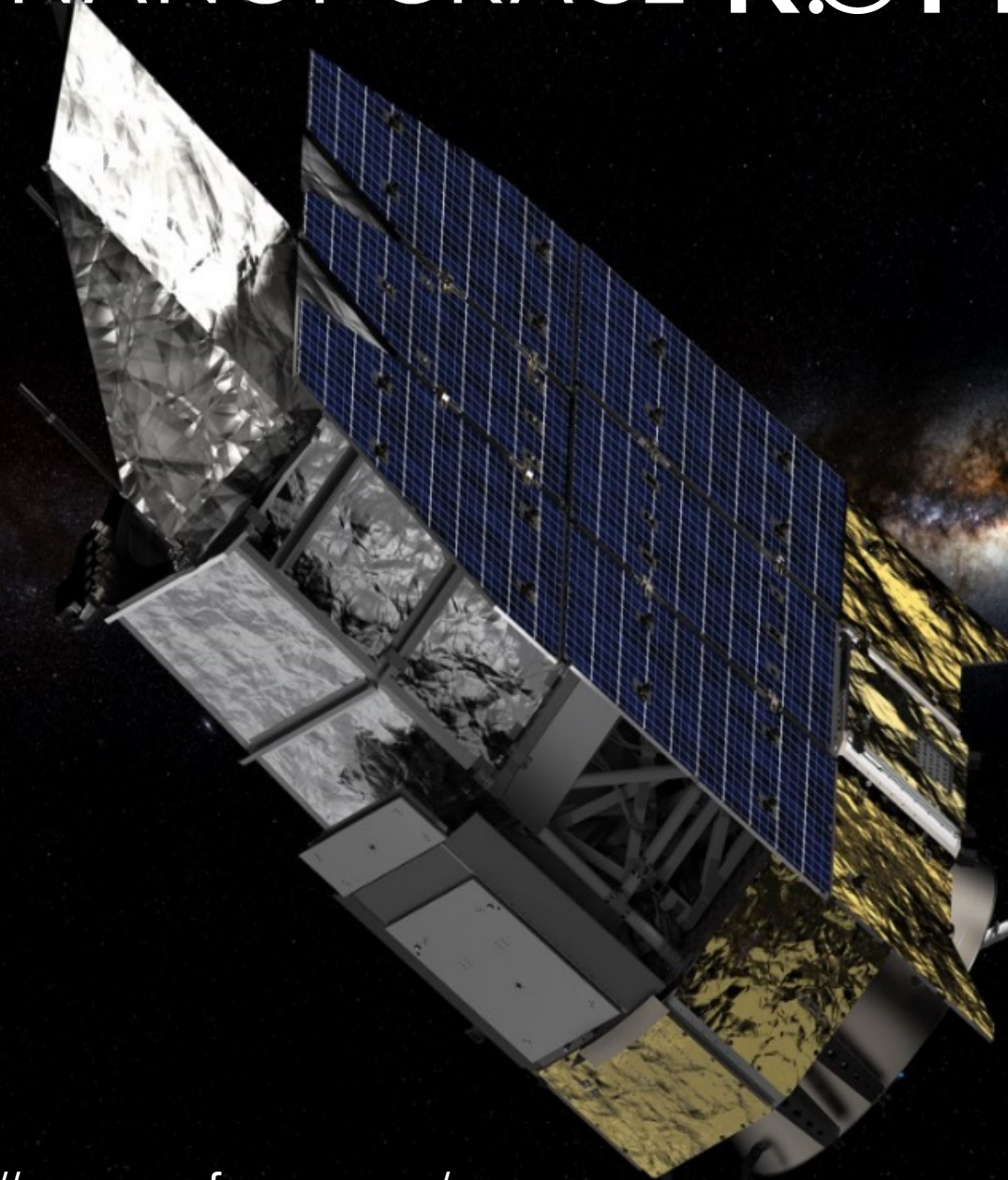
Senior Review is completed

Astrophysics Advisory Committee (APAC) met on June 7 to receive the report of the Senior Review Subcommittee.

Based on the advice of the APAC, NASA has decided to **extend TESS** (EM2)



# NANCY GRACE R.ÖMAN SPACE TELESCOPE



All major flight hardware procurements complete; substantial flight hardware completed – Heritage Telescope completion expected late 2022. Transitioning to assembly & test: Coronagraph late 2022; Wide Field Instrument early 2023; Spacecraft late 2023. Launch Vehicle selection imminent.

NASA launch commitment date remains May 2027.

NASA has asked the CAA to conduct a non-advocate review of the Roman Space Telescope science program and observing plan, as per Astro2020.

Opportunities for participation in Roman Space Telescope research and support are offered in ROSES-2021; draft solicitation Draft ROSES solicitation released 4/29; final expected in ~1 mo.

Roman Town Hall at AAS (Thu 12:45pm Ballroom D), plus varied Hyperwall talks scheduled every day!

# Roman Proposal Opportunities

- Nancy Grace Roman Space Telescope Research and Support Opportunities is being solicited as part of ROSES-2022. Draft released April 29; comment period ended May 31; final call anticipated in ~month, proposals due ~90 days after.
- Includes opportunities for astronomers to engage in multiple ways, proposing as small teams, large teams, or individuals. Intended to be accessible to early career researchers; theorists, observers, data analysts. Intended to be an opportunity for researchers even at smaller institutions to participate on a major NASA mission. Proposal categories are:
  - Wide Field Science – Investigators to work on science preparation activities related to mission performance verification and/or science operations preparation
  - Project Infrastructure Teams – Science teams to enable meeting the cosmology and exoplanet demographics objectives using the Core Community Surveys
  - Coronagraph Community Participation Program – Investigators to work with the Coronagraph instrument team to plan and execute tech demo observations
- Note that this is *not* a call for observing time – those will come in later years – and that the substantial observing time dedicated to the Core Community Surveys will be defined by an open community process run by STScI and IPAC over the course of the next few years.

Roman Solicitation Hyperwall  
Wednesday 5:40pm NASA booth

Roman Space Telescope Town Hall  
Thursday 12:45pm Ballroom D

# ARIEL

## Atmospheric Remote-sensing Infrared Exoplanet Large survey

### ESA and NASA partnership

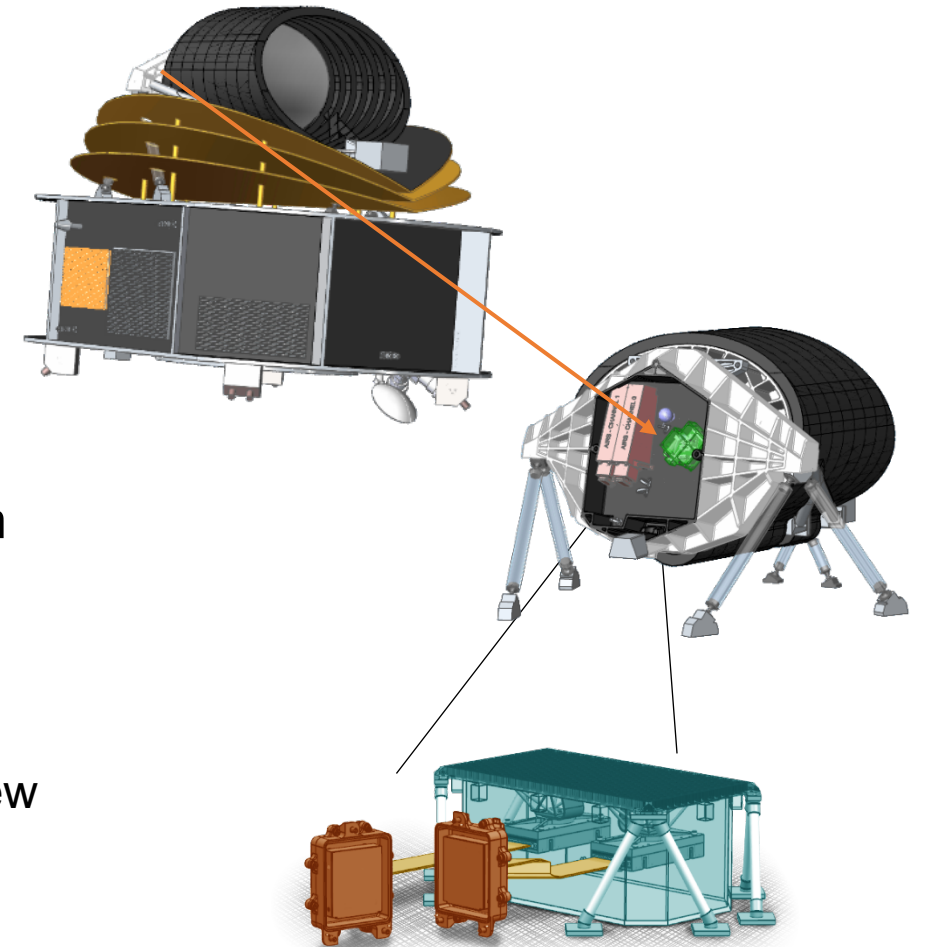
- Observe ~1000 planets
- Survey and characterize exoplanet atmospheres

NASA contribution (CASE) includes detectors and cold front-end electronics, packaging, thermal management, and cryoflex cables for ARIEL Fine Guidance System

Provides US participation in science team, mission survey design, and scientific discoveries

### STATUS:

- MOU draft is under State Dept review
- Summer 2022 – NASA Preliminary Design Review
- ~ Oct 2022 – NASA Confirmation
- Fall 2023 – NASA Critical Design Review
- Hardware deliveries late 2024 to 2025
- Launch ~2029



**CASE**

**Contribution to ARIEL Spectroscopy of Exoplanets**





# Astro 2020



# Importance of Inclusion, Diversity, Equity, Accessibility (IDEA)



“The panel [on the State of the Profession and Societal Impacts] asserts that fundamentally, the pursuit of science, and scientific excellence, is inseparable from the humans who animate it.”

- *Pathways to Discovery in Astronomy and Astrophysics for the 2020s*

NASA is committed to integrating inclusion, diversity, equity, and accessibility (IDEA) into all activities (missions, programs, reviews, internal matters, etc.)

# Building Excellent NASA Teams Requires Inclusion & Diversity



\* Responsive to an Astro2020 Decadal Survey recommendation

- IDEA is infused throughout everything we do. It is not a standalone or separate activity.
- Working on several new initiatives based on Astro2020 Decadal Survey recommendations – embargoed as this is a budgeting activity for FY24 \*
- Astrophysics has pioneered and piloted IDEA activities that are now adopted across SMD:
  1. Inclusion Plans adopted in ROSES elements across all SMD divisions \*
  2. Code of Conduct now adopted for panel reviews across all SMD divisions
  3. Dual Anonymous Peer Reviews adopted across all SMD divisions
  4. Inclusion Criteria in Senior Reviews of Missions adopted across all SMD divisions \*
  5. Increasing diversity of reviewers for all panels expected across all SMD divisions
- Other SMD level initiatives:
  7. Collection, evaluation, and publication of demographics of ROSES proposers and awardees \*
  8. Regularly report data on proposal submissions and success rates \*
  9. SMD Bridge Program funded for better engagement with MSIs \*
  10. [National Academies study](#) of barriers to inclusion in mission leadership
  11. Regular participation at meetings such as SACNAS and NSBP
  12. PI Launchpad to incubate next generation of diverse leaders for missions \*
  13. IDEA criteria being added to Announcements of Opportunity \*



# Great Observatories Maturation Program (GOMAP)

- Large observatories are a critical component of NASA's astrophysics portfolio
- Today NASA's priority is ensuring mission success for Webb and Roman
- Now is not the time to start a Future Great Observatory; now is the time to prepare
- NASA will take a deliberate, multi-stage planning and strategy approach to the next large observatory mission: GOMAP

See tomorrow's am session:

- Terri Brandt
- Rhonda Morgan
- Gary Blackwood
- Nick Siegler



Get involved



# Keep Connected with NASA

NSPIRES mailing list – information about NASA solicitations

<https://nspires.nasaprs.com/>

Cosmic Origins mailing list, Exoplanet Exploration mailing list, Physics of the Cosmos mailing list – information about NASA missions and science

<https://cor.gsfc.nasa.gov/cornews-mailing-list.php>

<https://exoplanets.nasa.gov/exep/exopag/announcementList/>

<https://pcos.gsfc.nasa.gov/pcosnews-mailing-list.php>

NASA Astrophysics Federal Advisory Committees

Astrophysics Advisory Committee (APAC)

<https://science.nasa.gov/researchers/nac/science-advisory-committees/apac>

NASEM Committee on Astronomy and Astrophysics (CAA)

[http://sites.nationalacademies.org/bpa/bpa\\_048755](http://sites.nationalacademies.org/bpa/bpa_048755)

Astronomy and Astrophysics Advisory Committee (AAAC)

<https://www.nsf.gov/mps/ast/aaac.jsp>

Sign up to be a panel reviewer:

<https://science.nasa.gov/researchers/volunteer-review-panels>

# Why Volunteer to Serve on a NASA Peer Review Panel?

## Personal professional development:

- See how the whole review process works
- Learn what constitutes excellent proposals
- Network with your professional colleagues and NASA scientific staff

## Institutional achievement:

- Improve at competing for NASA money
- Increase knowledge of NASA's research and technology programs

## Investment in the future:

- Help select the most transformative science
- Ensure that all proposals receive a fair and competent review

All reviewers receive an honorarium from NASA

Sign up to be a panel reviewer:

<https://science.nasa.gov/researchers/volunteer-review-panels>

or contact a NASA program officer (for contact info, see

<https://science.nasa.gov/researchers/sara/program-officers-list>)



Questions?

