

# THE NANCY GRACE ROMAN SPACE TELESCOPE





# Funding the Science Community

- Roman Science Investigation Team contracts ended in 2021
- Draft ROSES Solicitation for new teams/community support released for comments April 29-May 31; final expected to be released in about a month
- **A new start!**
  - Opportunity to rethink how the Roman Science community is structured

# Three Opportunities in Current Solicitation

- **Wide Field Instrument Science**
  - Support to prepare for and enhance the science return of *Roman* that can be addressed with its Wide Field Instrument
    - Multiple calls between now and launch
    - Regular (2 years, up to \$150k/year) and Large (4 years and  $\lesssim$ \$500k/year) categories
- **WFI Project Infrastructure Teams**
  - Sustained funding for teams to work in partnership with the science centers to develop infrastructure needed to enable the community to pursue *Roman's* ambitious science goals in cosmology and exoplanet demographics
    - Additional science areas that require extensive and sustained infrastructure development will also be considered.
- **Coronagraph Community Participation Program**
  - Opportunity to work with the coronagraph instrument team to plan and execute its technology demonstration observations.
    - Multiple calls between now and launch

# Wide Field Instrument Science

- ***Preparing for and enhancing Roman WFI Science***
  - Can include, but are not limited to, any combination of the following topics:
    - Precursor observations using ground- and/or space-based observatories to prepare for future *Roman* science observations and/or to provide calibration capability;
    - Development of *Roman* analysis software beyond that provided by the Science Centers. This could include topics like machine learning techniques in time domain astrophysics, high precision astrometric measurement techniques, etc.;
    - Development of algorithms for joint processing with data from other space- or ground-based observatories such as deblending algorithms, photometric redshift training and calibration, or forced photometry;
    - Theoretical and/or phenomenological modeling directly related to Roman capabilities;
    - Instrument calibration and characterization;
    - Development of survey strategies;
    - Development of simulation tools, producing simulated datasets, and conducting or participating in data challenges.
- ***Supporting the Roman project and Science Centers***
  - WFS supported teams are expected to form part of the funded Roman science community providing support and guidance to the Roman project and science centers.

# WFI Project Infrastructure Teams

Project Infrastructure Teams (PITs) partner with science centers providing comprehensive and sustained support enabling science objectives that require long-term scientific infrastructure development.

PITs will:

- A. develop and maintain such infrastructural tools and capabilities as are needed to address the mission objective that is the proposal's focus;
  - PIT infrastructure focused to a specific science objective, they are not *the* survey teams
- B. support community-led science consortia;
  - PITs enable the community to achieve ambitious Roman science objectives
- C. support the *Roman* Project and Science Centers (the SSC and the SOC)

PITs are service oriented; expected to work closely with Project and science centers to ensure that the community can achieve Roman science objectives

# Coronagraph Community Participation Program

- **Intent is to form a coalition of scientists/technologists to work together to plan and execute Coronagraph technology demonstration observations**
  - Some members of coalition from Coronagraph project & international partners, and the rest is solicited from the community via the current ROSES opportunity
- **Selecting individuals/small groups to make up CPP Team**
  - Broad opportunity for community engagement
  - Maximize diversity of interests & perspectives
- **Overall, providing long term support to Coronagraph**
  - Detailed planning & precursor work
  - Preparing for assessment, processing, and analysis of observations
  - Making the most of the observations to learn about space coronagraphy

# Engaging with Roman

- **Technical working groups that cut across all science areas**

- Forum for people to work together on topics/methods that cut across science areas
- Brings together Science community, science centers, and project
- Have been very successful over past 5 years, will update group structure later this year

Calibration

Astrometry

Software

Simulations

Detectors

Spectroscopy

- **Community-led Science Consortia**

- Enable people to engage with Roman science independently of NASA-selection
- Facilitate the formation of quasi-independent community-led consortia
- Definition of these is currently vague, because we want to work with the community to shape what these should be

Cosmology

Exoplanets

Astrophysics

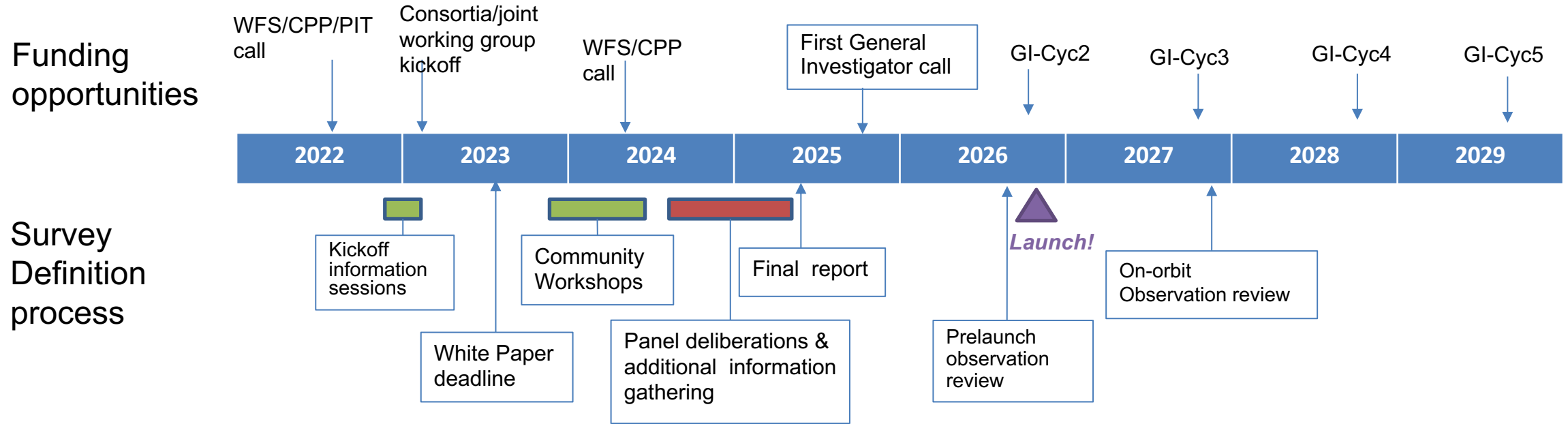
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# What's different from what we did before?

- **Larger number of small teams/individuals, many on short term**
  - Greater turnover, more flexibility to adjust science team to evolving science landscape and project needs
  - Multiple opportunities for new people to join
- **WFI Project Infrastructure Teams with long term baseline**
  - Expectation of continuing through to end of prime phase
  - Provides continuity and enhanced support to the community
- **Strong emphasis on science community coordination that is independent of the individual selected proposals**
  - Community-led Science Consortia
  - Reset structure of joint working groups (keeping the ones that work well)
- **Undergrad supplement for WFS**
- **ROSES solicitation in ~2 years**
  - Additional CPP and WFS opportunities



# The Road Ahead



- **Some things about Roman’s community plans are deliberately vague – they will be defined by *you, the community*, in the coming years!**