



STScI | SPACE TELESCOPE
SCIENCE INSTITUTE

EXPANDING THE FRONTIERS OF SPACE ASTRONOMY

Community Definition of Roman's Core Community Surveys

And Other Opportunities to Engage with the Nancy Grace Roman Space Telescope

Karoline Gilbert

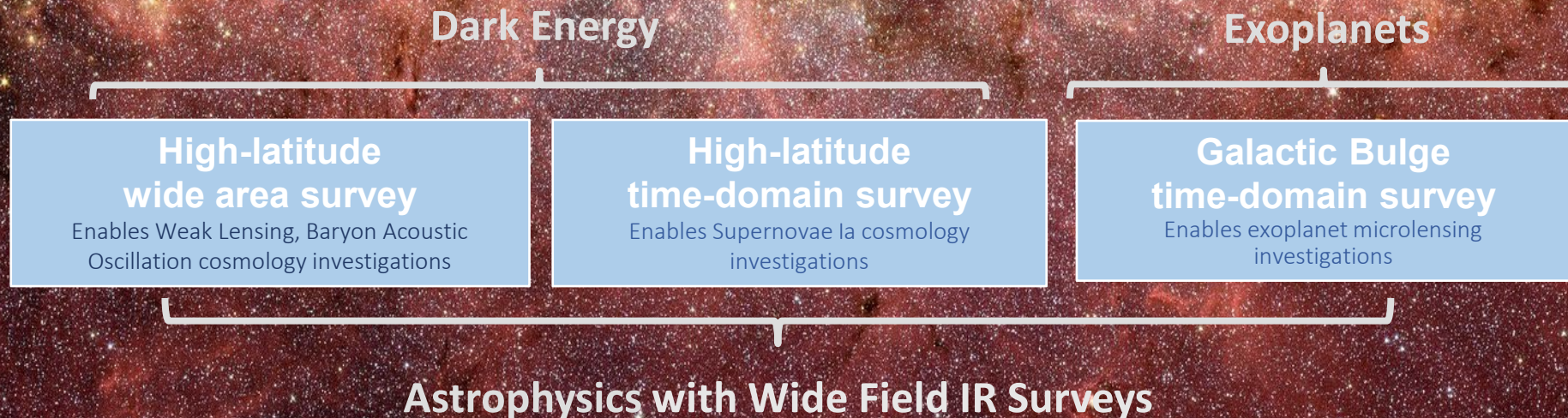
Mission Scientist, Roman Mission Office



Roman Observational Program: Wide-Field Infrared Surveys of the Universe

Majority of observing time dedicated to large Core Community Surveys

- ❖ Each has a core set of goals, but potential scientific scope far broader
- ❖ Survey designs to be decided through a community process to maximize total science return





Roman Observational Program: Wide-Field Infrared Surveys of the Universe

Large Core Community Surveys *majority of observing time*

Dark Energy

Exoplanets

High-latitude wide area survey
Enables Weak Lensing, Baryon Acoustic Oscillation cosmology investigations

High-latitude time-domain survey
Enables Supernovae Ia cosmology investigations

Galactic Bulge time-domain survey
Enables exoplanet microlensing investigations

Astrophysics with Wide Field IR Surveys

Smaller Astrophysics Surveys *nominally 25% of observing time*

- ❖ Selection via a peer-review process

Archival Investigations

- ❖ All data will be public immediately
- ❖ Anticipated to be main component of community involvement



Many Avenues to Engage with Roman

Launch!



2022

2023

2024

2025

2026

2027

2028

2029

Community-led definition of Roman's
Core Community Surveys



Engage with Project Partners on Specific
Technical Topics



Funded Preparatory Science Activities
(via NASA ROSES Opportunities)



Join Roman WFI Science
Collaborations



General Investigator Opportunities
(Principal Investigator-led Survey and
Data Analysis Proposals)





Top Level Goal for Defining the Core Community Surveys

Maximize the overall science return of Roman's wide field infrared surveys

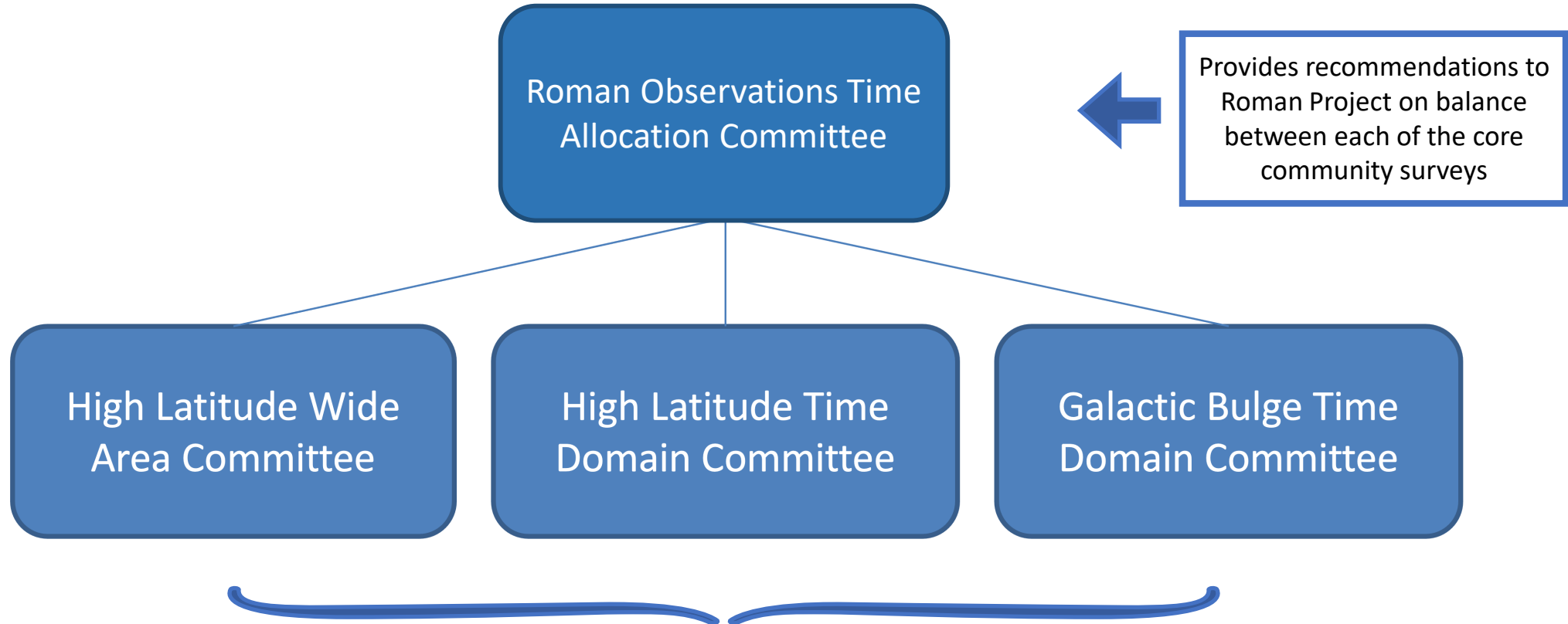
While meeting Mission requirements focused on cosmology and exoplanets

The Design Reference Mission survey strategies served their function in showing the mission can meet its requirements.

The actual surveys to be implemented will be defined by the astronomical community.



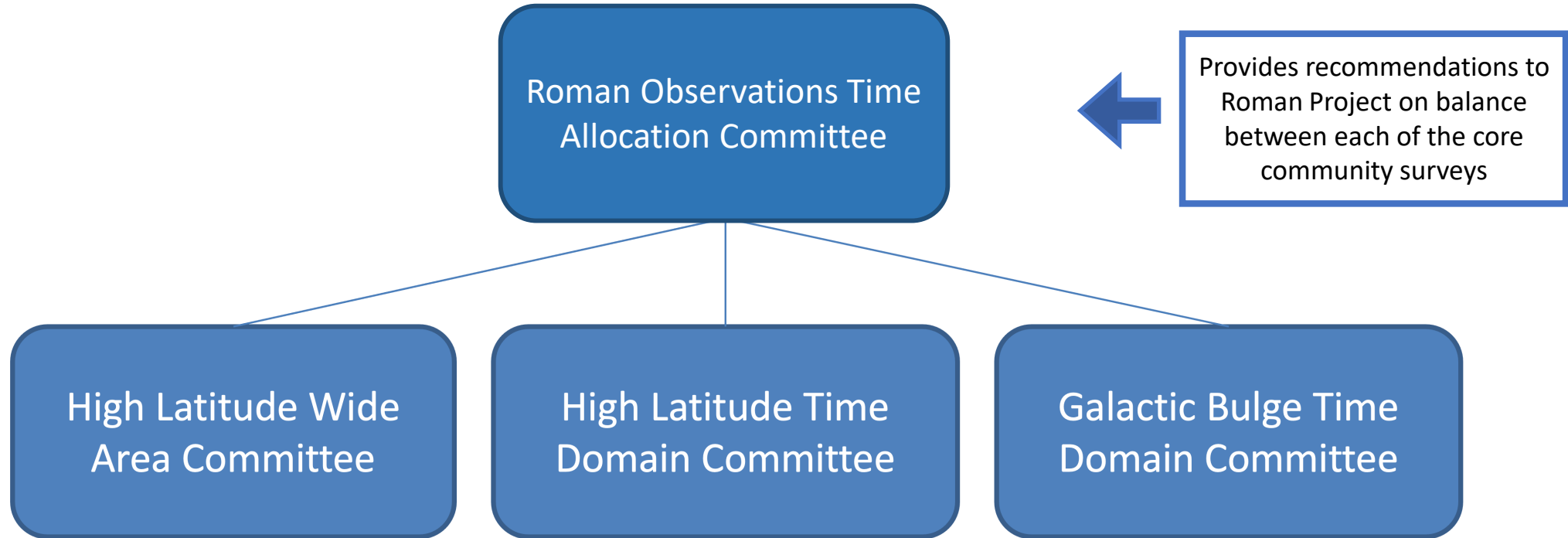
Strategy for Defining the Core Community Surveys



Evaluate initial community input; solicit additional, more targeted community input through a variety of channels; evaluate survey options against science metrics; produce recommendations for survey implementations with options for enhancements/descopes



Strategy for Defining the Core Community Surveys



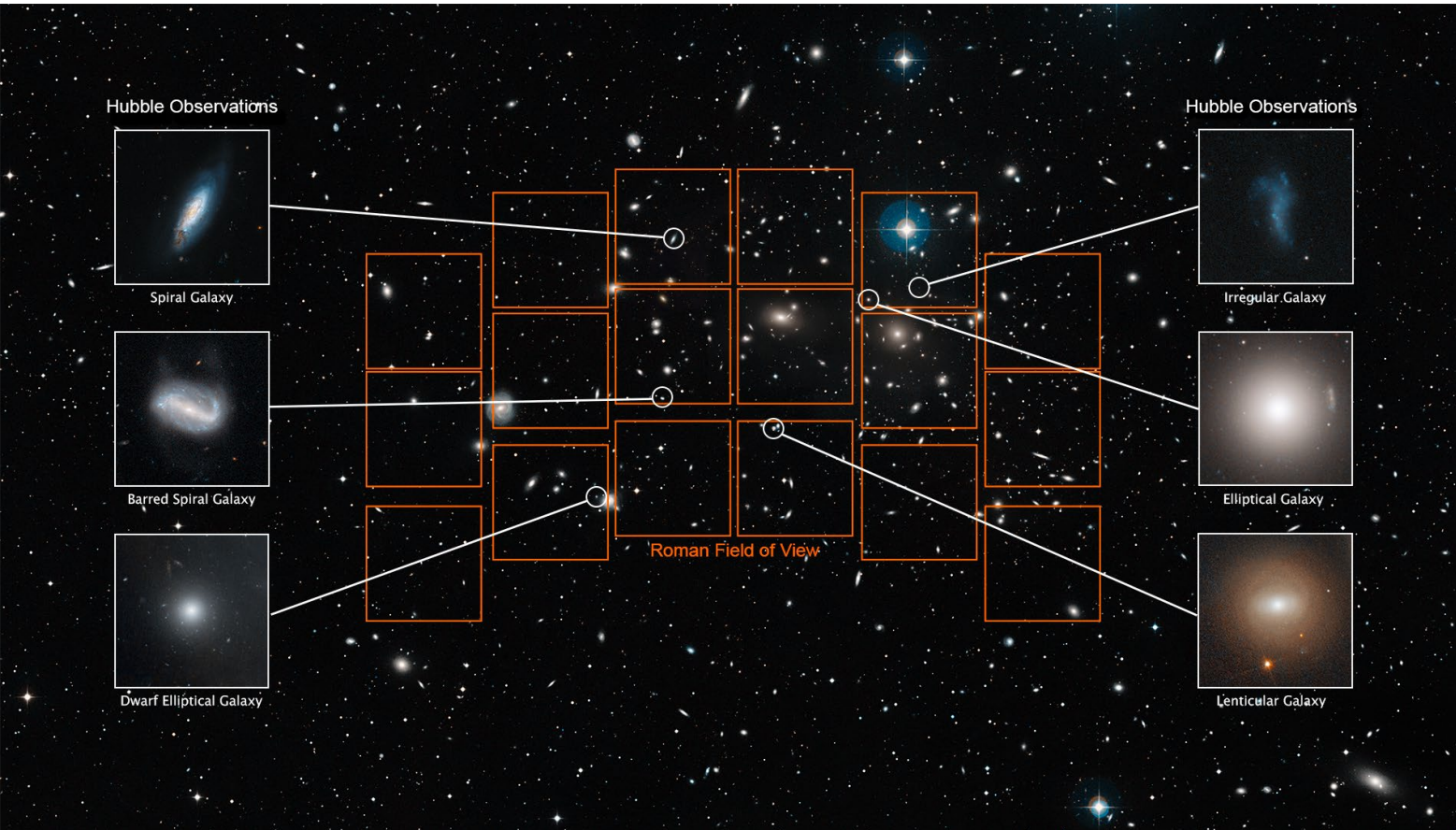
These committees will be *your* committees, and will be charged with understanding and representing the full breadth of the astronomy community's interests in Roman's Core Community Surveys.

There will be no "survey teams" selected to define or implement the surveys.



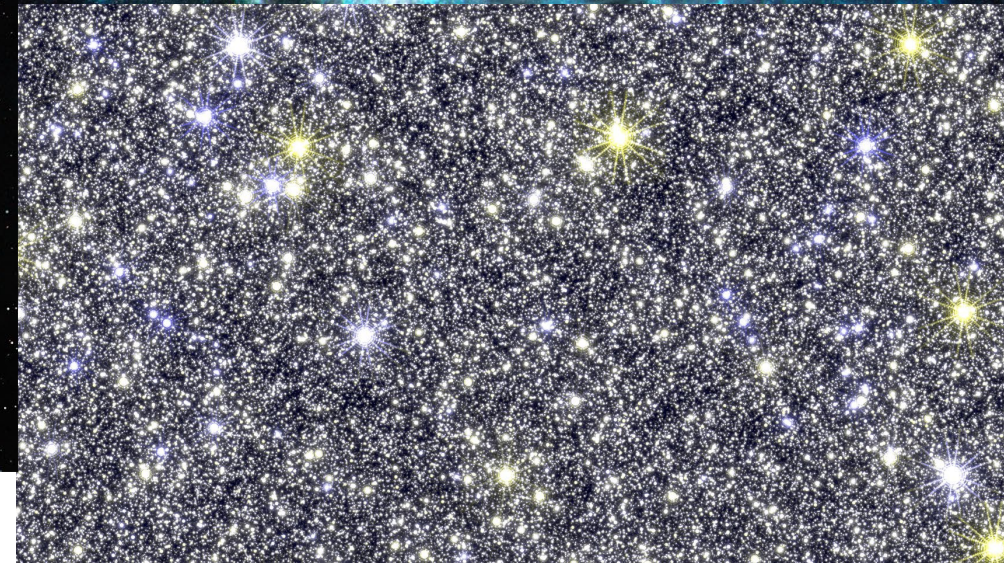
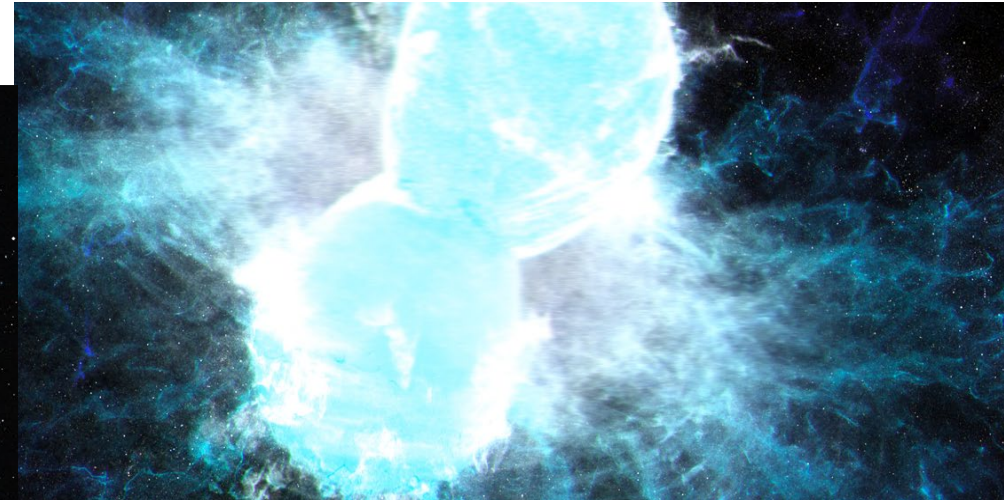
Should you provide input to defining the Core Community Surveys?

Three science case examples of many ...



Galaxy properties as a function of redshift

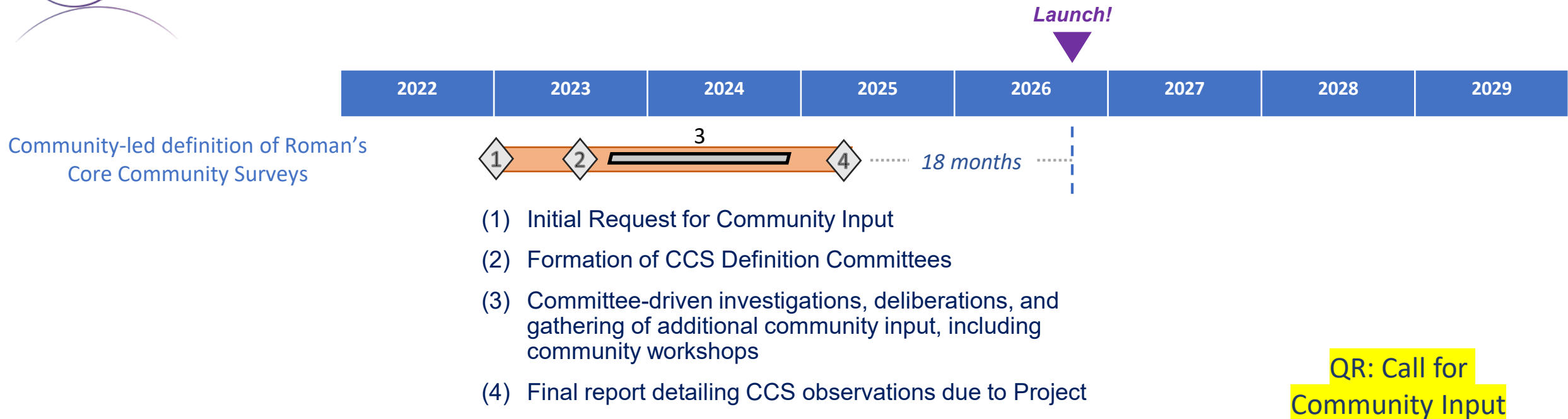
Illustration of a kilonova



Simulation of Galactic Bulge: 1/140th Roman's FOV



Timeline for Defining the Core Community Surveys

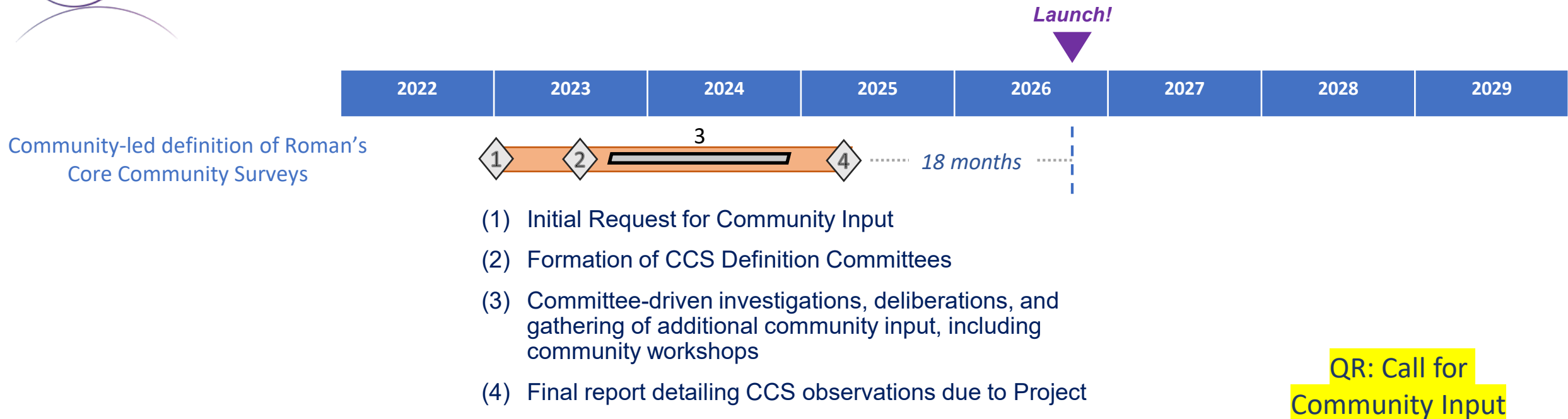


The content of the first set of community responses will be used to:

- Ensure the CCS committee members represent the breadth of science investigations that the community wants enabled by each CCS.
- Provide the CCS committees with initial technical input on what requirements on survey strategy are set by various science investigations, and what science investigation areas need the most additional community input and consensus-building.



Timeline for Defining the Core Community Surveys



Two avenues to respond to the initial request for community input into the CCS definitions:

(1) a “Science Pitch” (due Feb 17)

(2) a traditional white paper (due late spring)

Information and Q&A Sessions:

- **Splinter Session Wednesday, 2 pm, Room 4C-3: “Starting Now: Community-Led Definition of the Roman Core Community Surveys”**
- Two virtual sessions later in January
- All sessions will present the same information



Current Opportunities to Engage with Roman

Launch!



Engage with Project Partners on Specific Technical Topics



Join Roman Project Working Groups that explore technical topics, gather diverse input, and collaboratively address topics relevant to multiple science areas.

Examples include: calibration, software development, astrometry, simulations, detectors, and spectroscopy.



WG Sign Up



Current Opportunities to Engage with Roman

Launch!



Funded Preparatory Science Activities
(via NASA ROSES Opportunities)



- (1) NASA ROSES 2022: NOIs requested by Jan 20, proposals due March 21, 2023
- (2) Anticipated Roman opportunities in ROSES 2024

Roman Town Hall, Tonight at 6:30

Three funding categories currently available:

Anticipated to be offered only in ROSES-22:

- Sustained funding for science infrastructure development (WFI Project Infrastructure Teams)

Anticipated to be offered again in ROSES-24:

- Preparatory science investigations for the Wide Field Instrument (Wide Field Science)
- Support for working with the Coronagraph Instrument team to plan and execute the technology demonstration (Coronagraph Community Participation Program)



Resources for
current Roman
ROSES call



Future Opportunities to Engage with Roman

Launch!



Join Roman WFI Science Collaborations



General Investigator Opportunities
(Principal Investigator-led Survey and
Data Analysis Proposals)



Project-supported, community-led WFI Science Collaborations will provide a forum for the community to

- Engage with Roman science independently of NASA-led, peer-reviewed selections for funding or observing programs
- Self-organize in order to most effectively utilize Roman’s unique observational capabilities and analyze Roman’s large survey datasets

Regular General Investigator opportunities are anticipated to begin 1 year before launch, and will include calls for proposals for

- Principal Investigator led surveys
- Funded analysis of Roman datasets



Engaging with Roman: Additional Opportunities

Roman Town Hall, Tonight at 6:30

Roman Splinter: Community Definition of Roman's CCSs, Wednesday at 2pm

Stay Up To Date

- Roman Community Forum – nominally the 3rd Wednesday of each month, 4-5pm Eastern
- Roman Mailing Lists
 - Check myST account preferences – make sure to subscribe to “Roman Updates” for STScI Roman news and newsletters
 - Join the Roman Project mailing list: email roman-news-join@lists.nasa.gov



Roman
Community
Forum



RSIG

Reach out to your representatives

- Roman Science Interest Group (RSIG) – advises Roman Project Science Office at GSFC
- Roman ST Advisory Committee (RSTAC) – advises the STScI Director



RSTAC

Attend on-going series of Roman science conferences

- “Roman Science Inspired by Emerging JWST Results”, June 20-23, 2023, at STScI