

ROMAN⁻

Community Support and Science Analysis Plans



SPACE TELESCOPE



- Roman Science investigation team contracts ended in 2021
- Draft ROSES Solicitation for new teams/community support will be released within the next few weeks
- What are we trying to achieve
 - Variety of award sizes and durations
 - Multiple funding opportunities between now and launch for support for people at US institutions to work independently or with existing science teams
 - Longish term stable support of teams to allow development of software/pipelines etc
 - Ability for people to engage with Roman project/science teams independently of funding



Wide Field Instrument Science

- This opportunity provides support to prepare for and enhance the science return of Roman that can be addressed with its Wide Field Instrument (WFI).
 - Multiple calls between now and launch
 - Regular and Large categories

Infrastructure Teams

- This opportunity provides sustained funding for teams to develop infrastructure needed to enable the community to pursue *Roman*'s ambitious science goals in cosmology and exoplanet demographics that are part of Roman's mission success criteria.
 - Additional science areas that require extensive and sustained infrastructure development will also be considered.
- Coronagraph Community Participation Program (CPP)
 - This provides an opportunity for proposers to work with the coronagraph instrument team to plan and execute its technology demonstration observations.
 - Multiple calls between now and launch



- 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.



- WFS solicitations every two years until ~1 year before launch
- First General Investigator proposal opportunity one year prior to launch, and annually thereafter which provides:
 - funding to conduct Roman science investigations
 - and/or new general astrophysics surveys
 - No proprietary period for any Roman science data



Roman Science Operations





Data system consists of:

- Pipeline for low level data processing
- Pipeline for high level processing
- Science platform (HLPP) allowing users to interact with data and high-level processing software in the cloud
- Archive with HST/JWST/MAST like functionality
- Updated data processing plans at STScI (SOC) and IPAC (SSC) to augment high level science processing
 - catalog functions to be implemented by science centers: include deblending, photoz, some time-domain functions etc
 - Astrometry functions e.g. tying to Gaia
 - Some elements of PSF characterization
 - Instrument simulations