

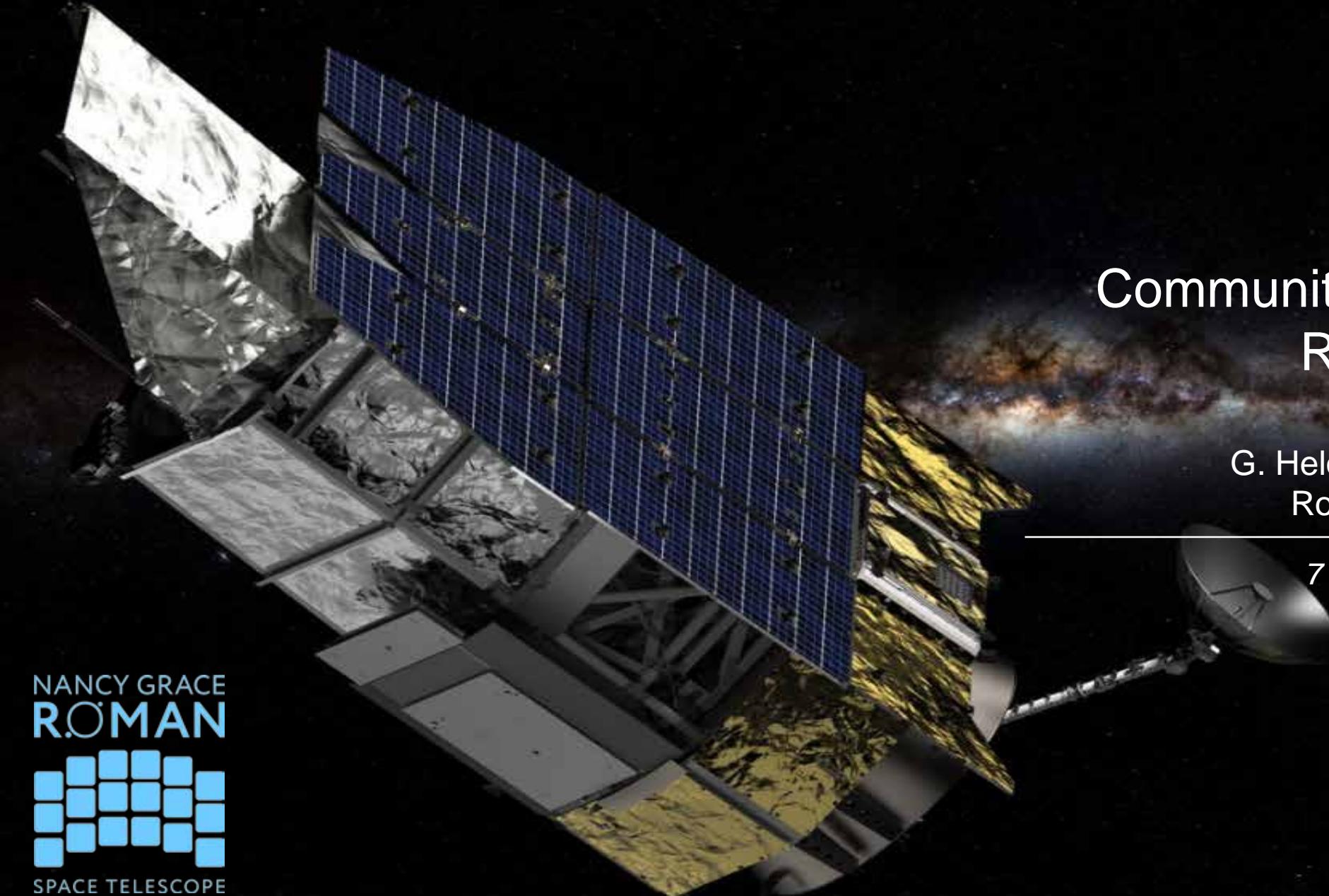


Community Science with Roman

G. Helou & L. Armus
Roman SSC

7 April 2022

NANCY GRACE
Roman



- The SSC at IPAC works with the other Ground System elements to achieve the scientific and operational goals of the Roman mission.
- Primary SSC Responsibilities include:
 - **Science Data pipelines**
 - *Science data processing for the Galactic Bulge Time Domain Survey*
 - *Science data processing for all Wide Field Spectroscopy mode data including the High Latitude Wide Area, Time Domain and General Astrophysics surveys*
 - **Coronagraph Instrument Operations**
 - *CGI Observation scripts and procedures*
 - *Data Analysis Environment for CGI data processing*
 - *High Order Wave Front Sensing and Control (deformable mirror) operations*
 - *CGI health, safety and performance monitoring*
 - **Proposal calls, peer reviews and community grants**
 - *Issue Roman Observing/Data Analysis/Theory proposal calls*
 - *Manage the peer review and time allocation process and investigator grants*
 - **Community engagement**

(2) NASA's plans to involve the community with optimizing the CCS for general astrophysics

- Roman is required to carry out the CCS, and that will require a large fraction of mission time, up to 75%.
- Goal should be to maximize science return per time spent.
 - This can be accomplished by increasing the numerator or decreasing the denominator
- Increasing the science return by enhancing the CCS science reach has been shown as quite viable in earlier presentations by SITs and others (current plans)
- Decreasing the time by narrowing down the science focus is more risky because the CCS have some incompressible elements to them, such as intrinsic timescales of phenomena under investigation. Large decrease would be needed to offset the reduced science scope
- Conclusion: The approach adopted is reasonable, but should also address the denominator
 - Challenge now is to work out an effective step-by-step process for community engagement and decision making
 - Given the scope of CCS, periodic gate reviews before and after launch would help keep the CCS return-to-time ratio optimized, and keep the community updated on progress

(3) How to distribute small/medium/large projects within the >25% time allocated to competed GAS

- It is a generally agreed principle in the Astrophysics community that resources should be distributed to achieve balance across scope or size.
 - The Decadal Surveys recommend that approach for the overall investment portfolio in Astrophysics
 - Reviews of operating missions have advocated a similar balance for time allocation on NASA Observatories
- The precise balance will depend on many parameters (including science, risk/return, capabilities, budgets) and will evolve over mission lifetime.
 - True for all investigations, whether or not requiring new data
- NASA Science Centers have achieved the desirable balance in any given call for all Great Observatories, Chandra, Hubble and Spitzer
 - Observatories have used multiple approaches to achieving this balance, so the experience base is broad
 - For instance, very large surveys were enabled that stretched across multiple Call cycles
- Whatever this balance, we must enable and encourage the community to bring their creativity to the exploitation of Roman's capabilities
 - This is how we get to the unanticipated breakthrough science

(4) Any other comments

- No other comments