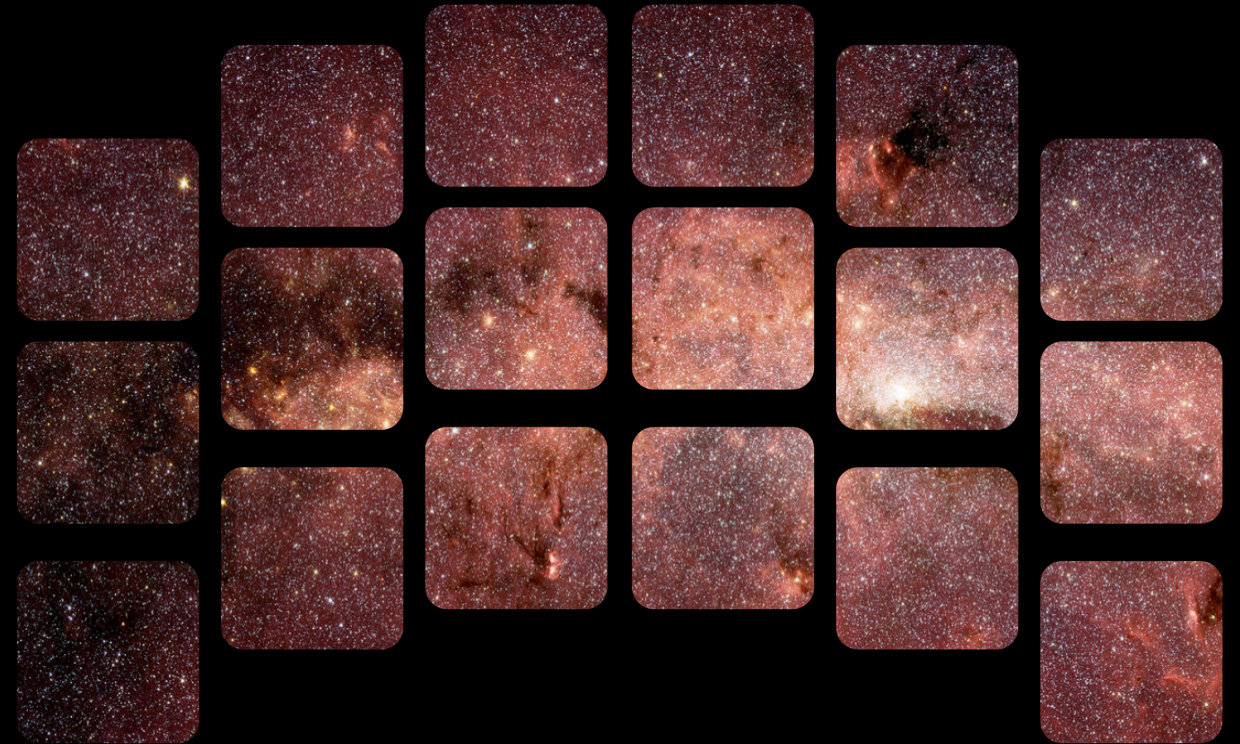


# R.ÖMÄN

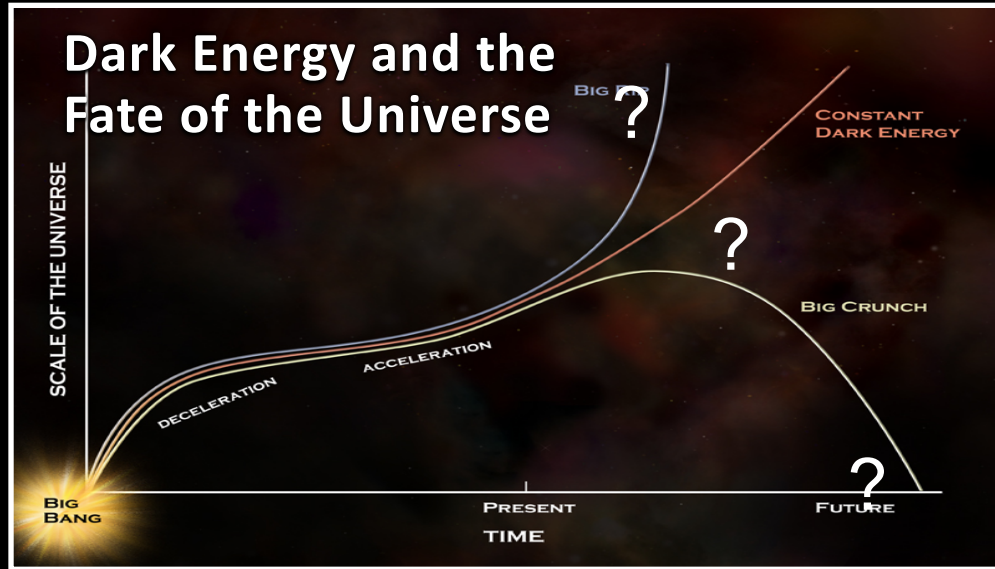
Mission Status  
Julie McEnery  
NASA/GSFC



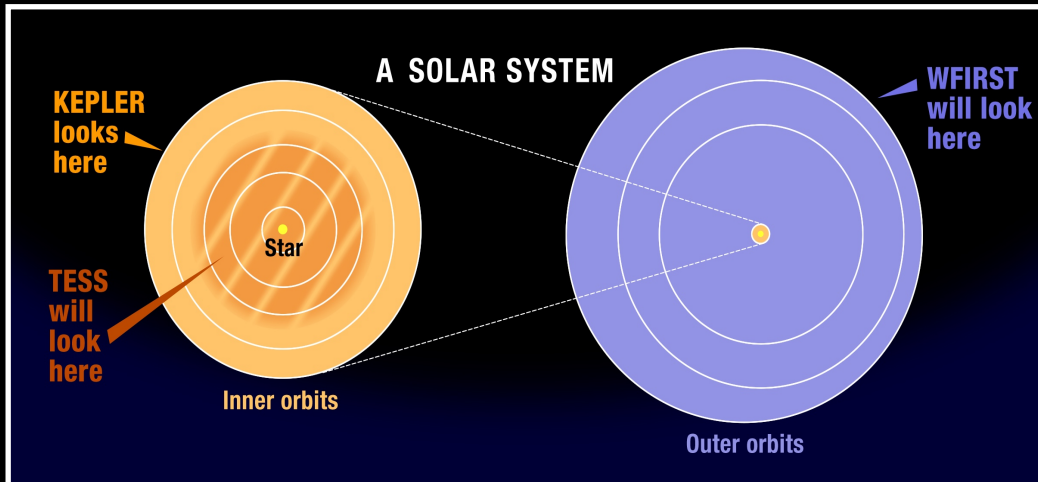
# SPACE TELESCOPE

• NASA GODDARD SPACE FLIGHT CENTER • JET PROPULSION LABORATORY •  
• L3HARRIS TECHNOLOGIES • BALL AEROSPACE • TELEDYNE • NASA KENNEDY SPACE CENTER •  
• SPACE TELESCOPE SCIENCE INSTITUTE • IPAC • EUROPEAN SPACE AGENCY •  
• JAPAN AEROSPACE EXPLORATION AGENCY • LABORATOIRE D'ASTROPHYSIQUE DE MARSEILLE •  
• CENTRE NATIONAL d'ÉTUDES SPATIALES • MAX PLANCK INSTITUTE FOR ASTRONOMY •

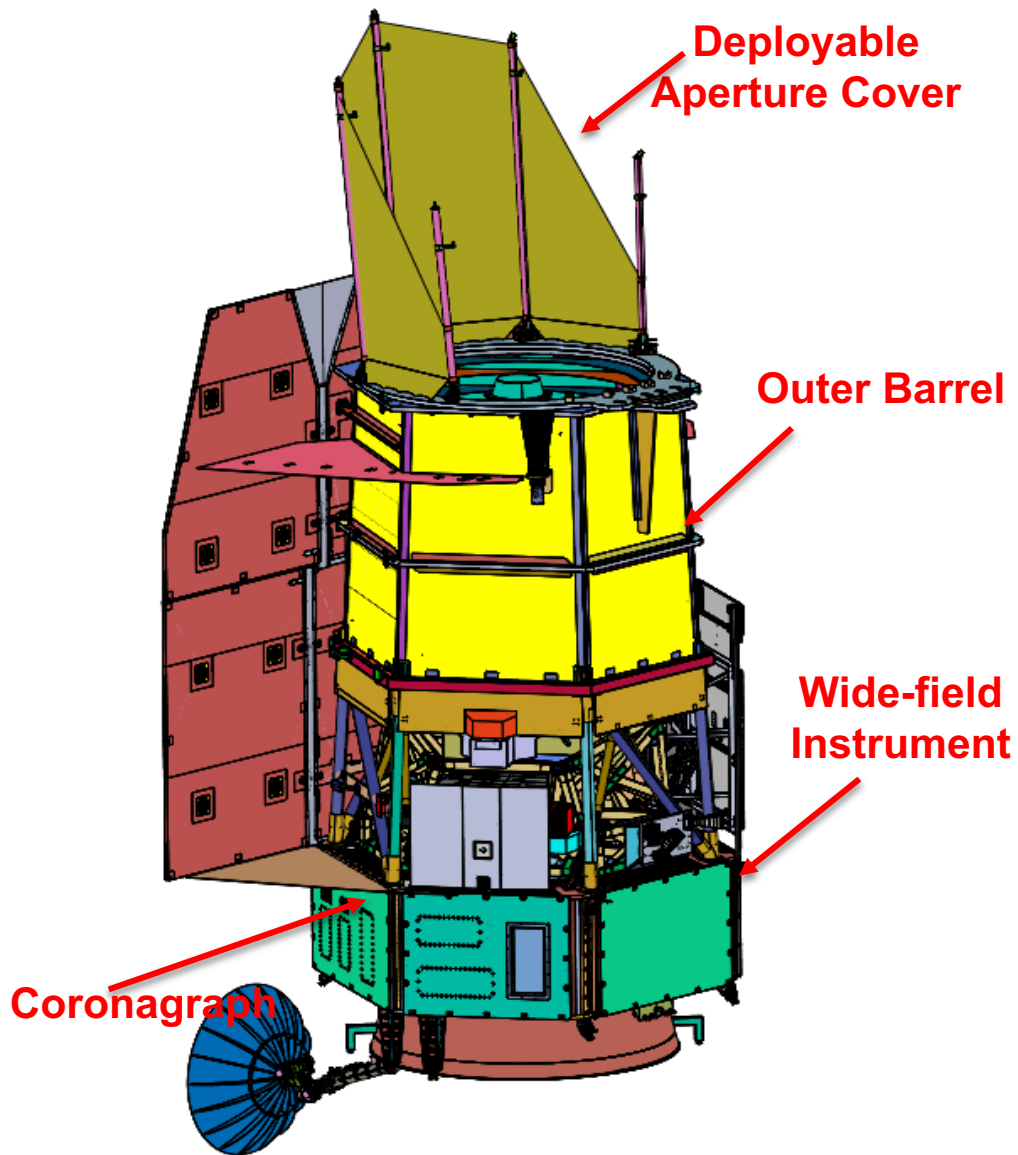
# Roman Mission Objectives



## The full distribution of planets around stars



# Roman Observatory and Instruments



**Telescope:** 2.4m aperture

## Two Instruments:

### Wide Field Imager / Slitless Spectrometer

- Near IR bandpass(0.48 – 2.3 micron)
- Field of view 0.281 deg<sup>2</sup> (~200xHST WFC3-IR)
- 18 4k x 4k detectors (288 Mpixels)

### Coronagraph

- Visible bandpass
- Contrast 10<sup>-8</sup>-10<sup>-9</sup>

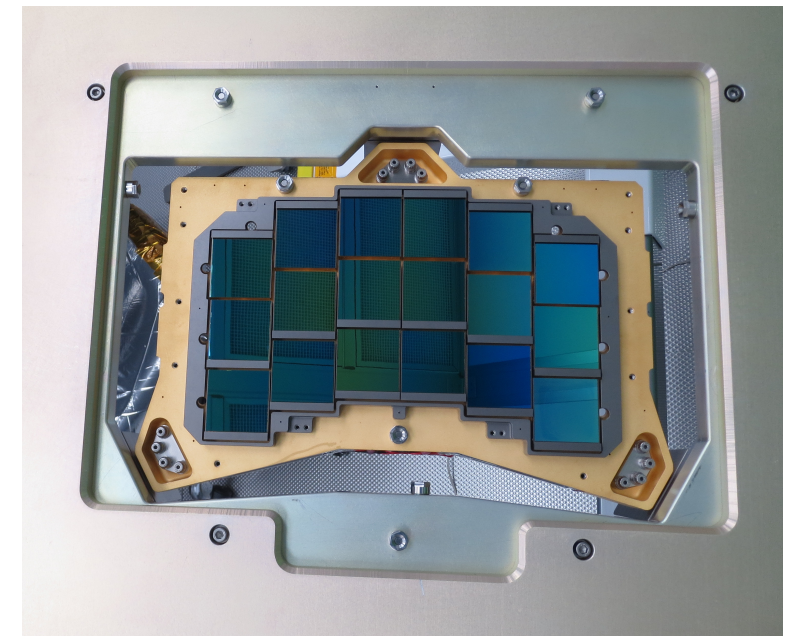
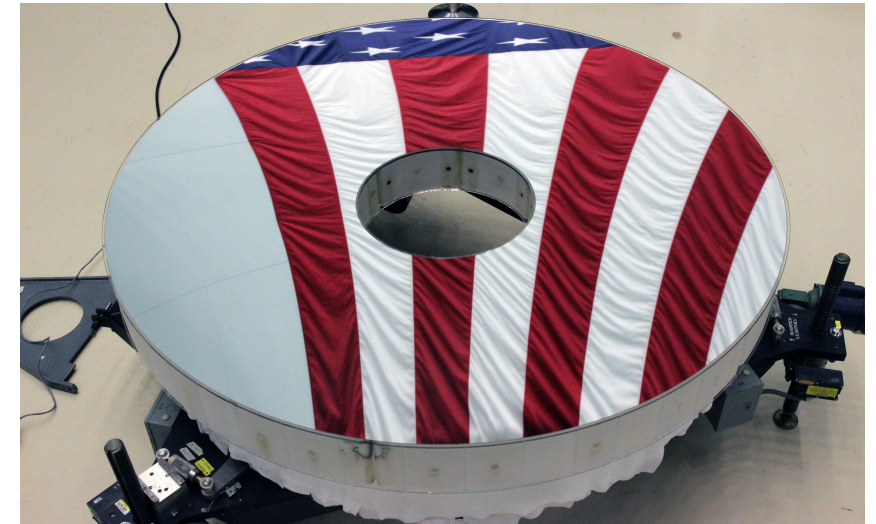
**Data Volume:** 11 Tb/day, **Downlink:** 275 Mbps

**Orbit:** Sun-Earth L2

**Mission Duration:** 5 yr, 10yr goal

# Roman Space Telescope Status

- **Advanced to phase C (i.e. started implementation phase) in early 2020**
- **Mission Critical Design Review in Sept 2021**
- **Flight hardware being built**
  - **Telescope:** Primary and secondary mirrors have been refigured, polished and coated; coronagraph relay optics polished and coated;
  - **WFI:** Completed installation and alignment of all 18 engineering test unit (ETU) sensor chip assemblies (SCA) on the ETU mosaic plate
  - 15 out of 18 flight candidate SCAs in hand
  - added new F213 filter (1.95-2.3 micron) – now have imaging filters covering entire spectral range supported by mirrors/detectors!
  - CGI: See talk by Vanessa Bailey
- **On track for launch in mid-2020's**



# Roman Observations

- **Core Community Surveys: a significant fraction of the prime mission used for revolutionary surveys of unprecedented scale**
- **Three Core Community Surveys to address 2010 Decadal Survey science goals**
  - Extragalactic Wide Area Survey
  - Extragalactic Time Domain Survey
  - Galactic Time Domain Survey
- **The definition of core community surveys will be established via an open process, with a goal of maximizing the overall science return while simultaneously meeting the cosmology and exoplanet science requirements**
- **Several calls for GO surveys closer to, and after, launch**
- **No proprietary period for any Roman data**

# Science Investigation Teams

- **Supernova Cosmology: Ryan Foley, Saul Perlmutter**
- **Nearby Galaxies: Ben Williams**
- **Extragalactic: Brant Robertson**
- **Weak Lensing and Galaxy Redshift Survey: Olivier Dore**
- **Exoplanet Coronagraphy: Bruce Macintosh, Margaret Turnbull**
- **Archival Research: Alexander Szalay**
- **Cosmic Dawn: James Rhoads**
- **Exoplanet Microlensing: Scott Gaudi**
- **Milkyway: Jason Tumlinson**
  
- **~300 scientists in total**
  - scientific performance requirements related to the specific science area,
  - design of overall observational strategy concept,
  - science data analysis techniques,
  - ground and space calibration requirements,
  - science simulations, precursor observations,
  - ground calibration, observational needs, data processing, ancillary data collection/incorporation, analysis, dissemination and documentation of the proposed science investigation.
  
- **Current science team contracts expire later this year**

Adjutant Scientists  
David Spergel - WFI  
Jeremy Kasdin - CGI

# Roman Science Interest Group

- <https://roman.gsfc.nasa.gov/science/rsig.html>
- **Meeting presentations and notes available on the meetings tab**
  - Recent discussions have been on the observing program
- **Annual opportunities to join this group (see Dominic Benford's talk)**
- (for SOC role at STScI) see also: <https://www.stsci.edu/roman/about/roman-advisory-committee-rstac>

Megan Donohue (Chair)	Michigan State U.
Zeljko Ivesic	U. Washington
Jessica Lu	UC Berkeley
John MacKenty	STScI
Ashley Villar	Columbia U / Flatiron Institute
Alice Shapley	UCLA
Keith Bechtol	UW, Madison
Saurabh Jha	Rutgers U
Peter Melchior	Princeton U
Dara Norman	NOIRlab
Jessie Chistiansen	NEXSci/ CalTech
Rachel Bean	Cornell U
Ryan Hickox	Dartmouth
Lisa Storrie-Lombardi	Las Cumbres Observatory
Dimitri Mawet	CalTech

# Annual Roman Science Conference

- Hosted in alternate years by STScI or IPAC
- Previous workshops
  - Galaxy Formation and Evolution in the Era of the Nancy Grace Roman Space Telescope (2020),
  - Science in our own backyard – exploring the Galaxy and the local group with WFIRST (2019)
  - Astronomy in the 2020s: Synergies with WFIRST (2017)

## Exploring the Transient Universe with The Roman Space Telescope

*..an international meeting to be held in Fall 2021 at IPAC/Caltech*

Magnification

3  
2  
1

8 hours

30 days

Magnification by stellar lens

Deviation due to planet

For updates and information see: <https://roman.ipac.caltech.edu>



# Roman Virtual Lecture Series

<https://roman.ipac.caltech.edu/Lectures.html>

- Monthly lecture series jointly run by IPAC, STScI, JPL and GSFC
- Please join us
- Speaker suggestions welcome

**Nancy Grace Roman Space Telescope at IPAC**

HOME | SCIENCE | DOCUMENTS | SIMULATIONS | TALKS & EVENTS | PUBLICATIONS | CONTACT

## Roman Virtual Lecture Series

The Nancy Grace Roman Space Telescope monthly virtual lecture series is run jointly by JPL, IPAC, Goddard, and STScI. These talks are open to the entire astronomy community and cover science, engineering, and technology related to the Roman mission. All are welcome and encouraged to attend. Talks are ~20 minutes with ~10 minutes for Q/A, and are scheduled for the 3rd Thursday of each month from 1-1:30 pm Pacific / 4-4:30 pm Eastern.

Organizing Committee: Rob Zelle (JPL), Tiffany Meshkat (IPAC), Ryan Russell (STScI), Karoline Gilbert (STScI), Julie McEney (Goddard), Sangeeta Malhotra (Goddard).

Please contact Rob Zelle at JPL (Robert.T.Zelle@jpl.nasa.gov) if you are interested in giving a talk on work related to the Roman Space Telescope.

To receive monthly lecture announcements and webinar connection information, please subscribe to [this mailing list](#).

### Upcoming

DATE	SPEAKER (AFFILIATION)	TITLE (RECORDING)	ABSTRACT

### Past

DATE	SPEAKER (AFFILIATION)	TITLE (RECORDING)	ABSTRACT
• Dec. 17, 2020	Prabal Saxena (GSFC)	Simulating Roman/CGI Observations of the reflected light exoplanet spectra of the bright, nearby exoplanet ups And d	Abs
• Nov. 19, 2020	Dominic Benford (NASA HQ)	Is Nancy Grace Roman the Most Influential Person You've Never Heard Of?	Abs
• Oct. 15, 2020	Marie Ygouf (JPL)	Post-Processing of Roman Space Telescope CGI Data	Abs
• Sep. 17, 2020	Harry Ferguson (STScI)	Sort of Near-Field Cosmology with Semi-Resolved Dwarf Galaxies	Abs

# Summary

- **The Nancy Grace Roman Space Telescope is on track for launch in mid 2020's**
- **There are many ways to get involved (and you'll hear more in the next talk)**
- **To get periodic news and updates about Roman, join the Roman news mailing list at**
  - <https://lists.nasa.gov/mailman/listinfo/roman-news>