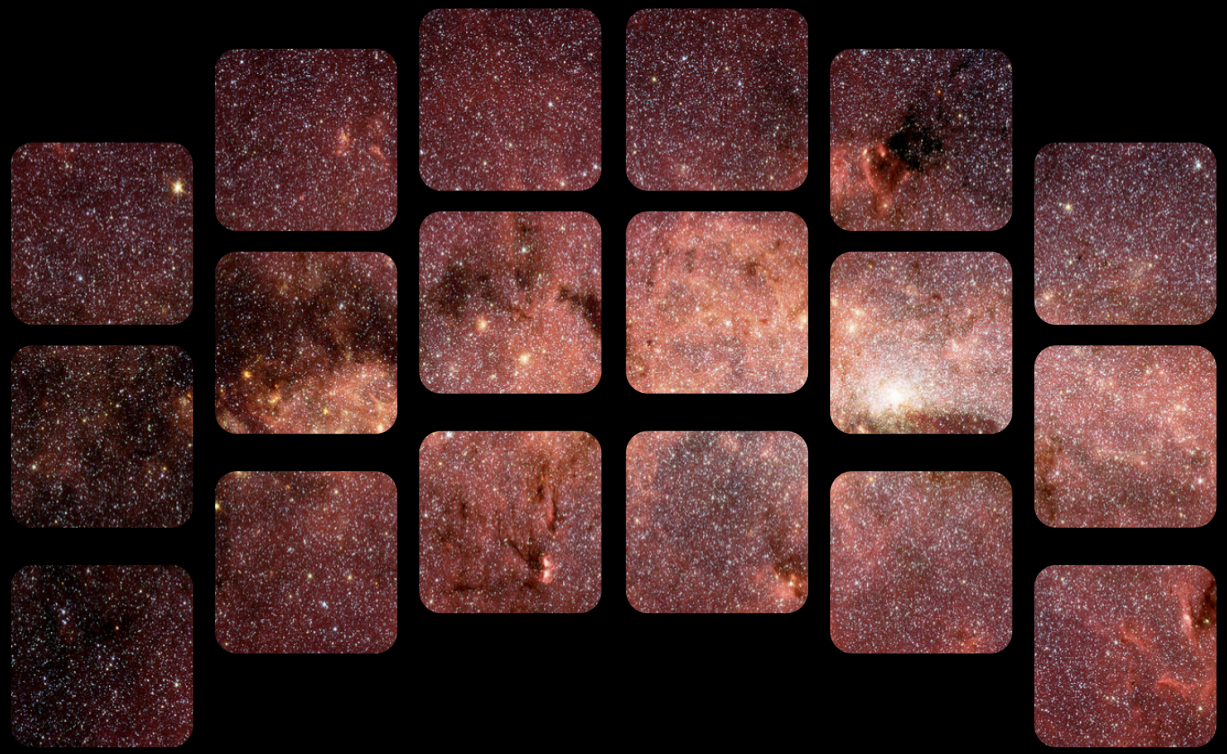
Mission Status

Julie McEnery
NASA/GSFC



ROMAN SPACE TELESCOPE

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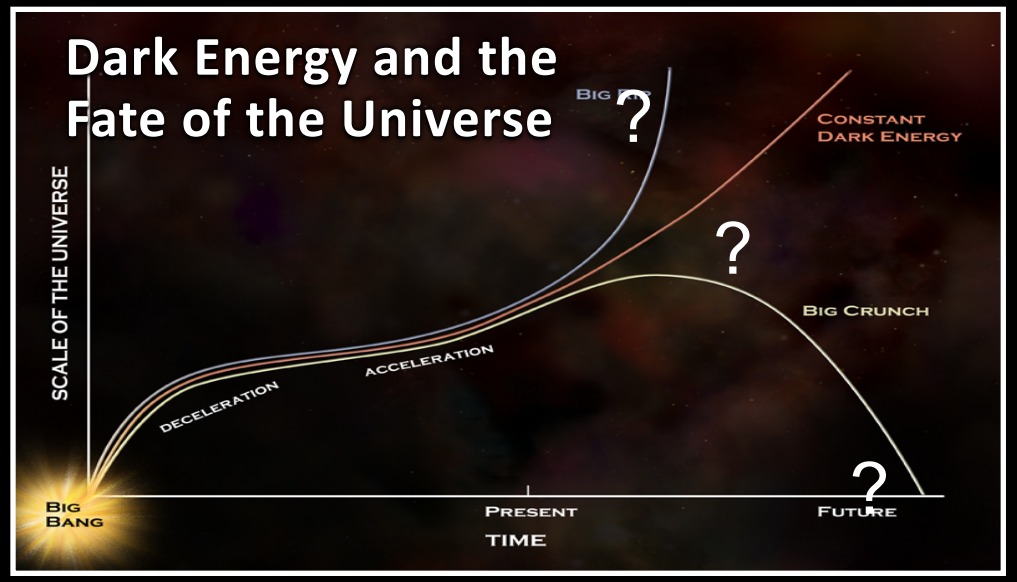
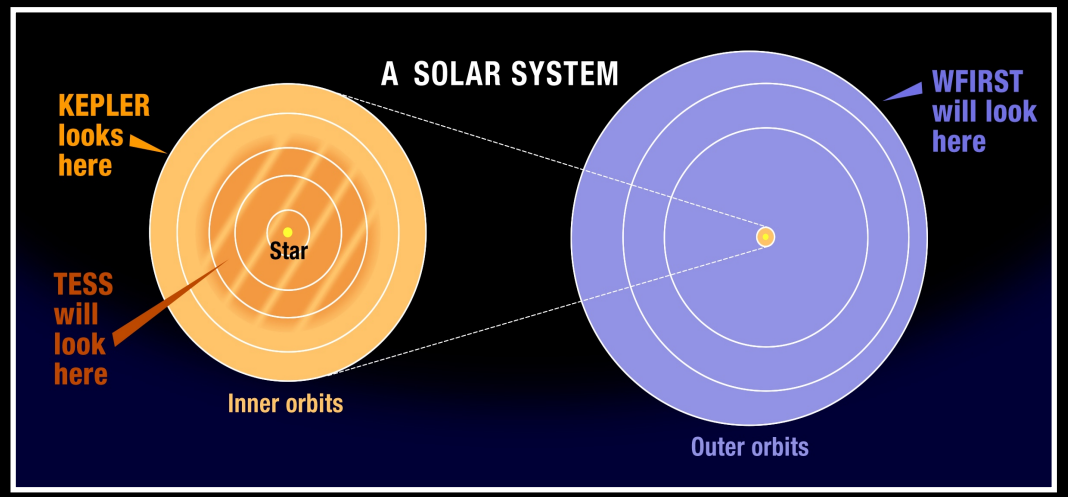
• CENTRE NATIONAL d'ÉTUDES SPATIALES • MAX PLANCK INSTITUTE FOR ASTRONOMY •

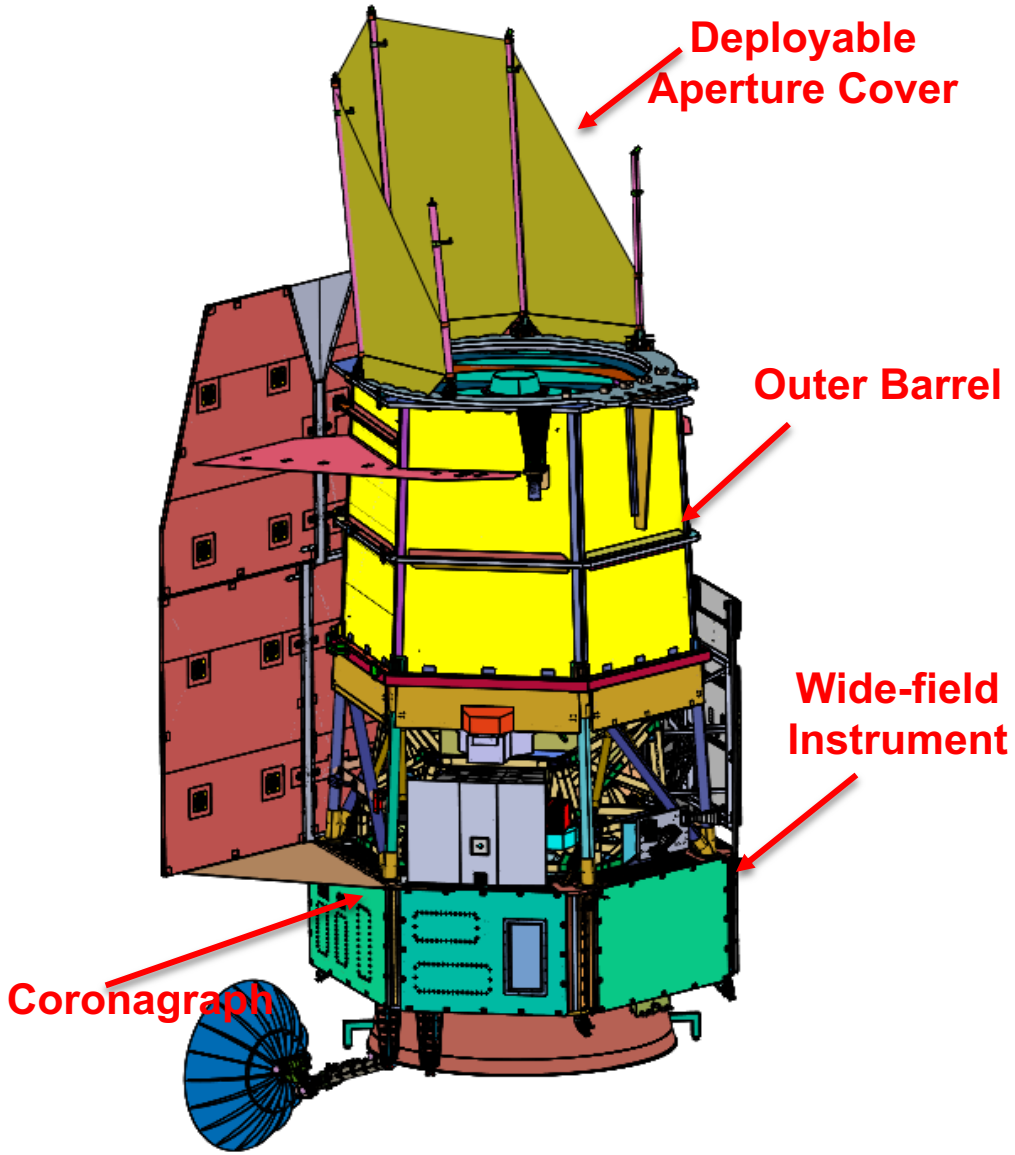
Roman Mission Objectives



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^2 (~200xHST WFC3-IR)
- 18 4k x 4k detectors (288 Mpixels)

Coronagraph

- Visible bandpass
- Contrast 10^{-8}-10^{-9}

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

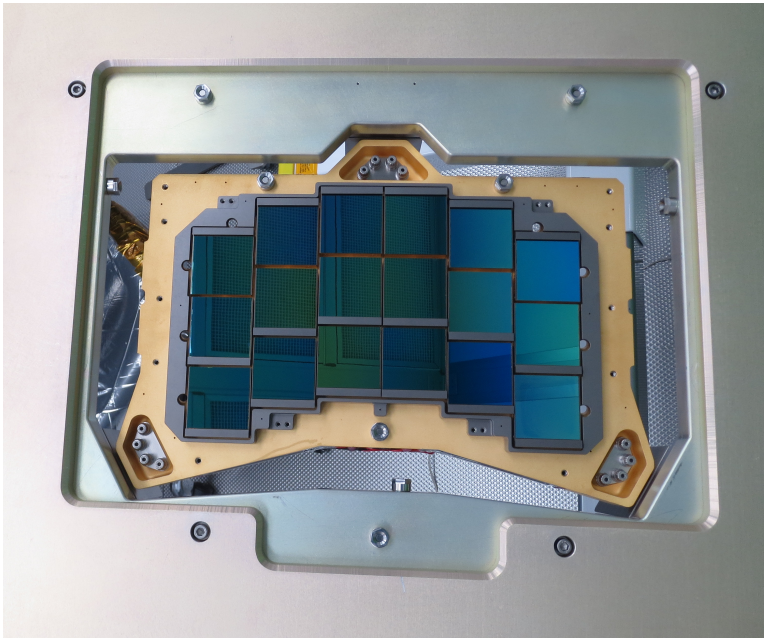
Orbit: Sun-Earth L2

Mission Duration: 5 yr, 10yr goal

https://roman.gsfc.nasa.gov/science/Roman_Reference_Information.html

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 Coronography: Bruce Macintosh, Margaret Turnbull**
- **Archival Research: Alexander Szalay**
- **Cosmic Dawn: James Rhoads**
- **Exoplanet Microlensing: Scott Gaudi**
- **Milkyway: Jason Tumlinson**

Adjutant Scientists
David Spergel - WFI
Jeremy Kasdin - CGI

- **~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**

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)**

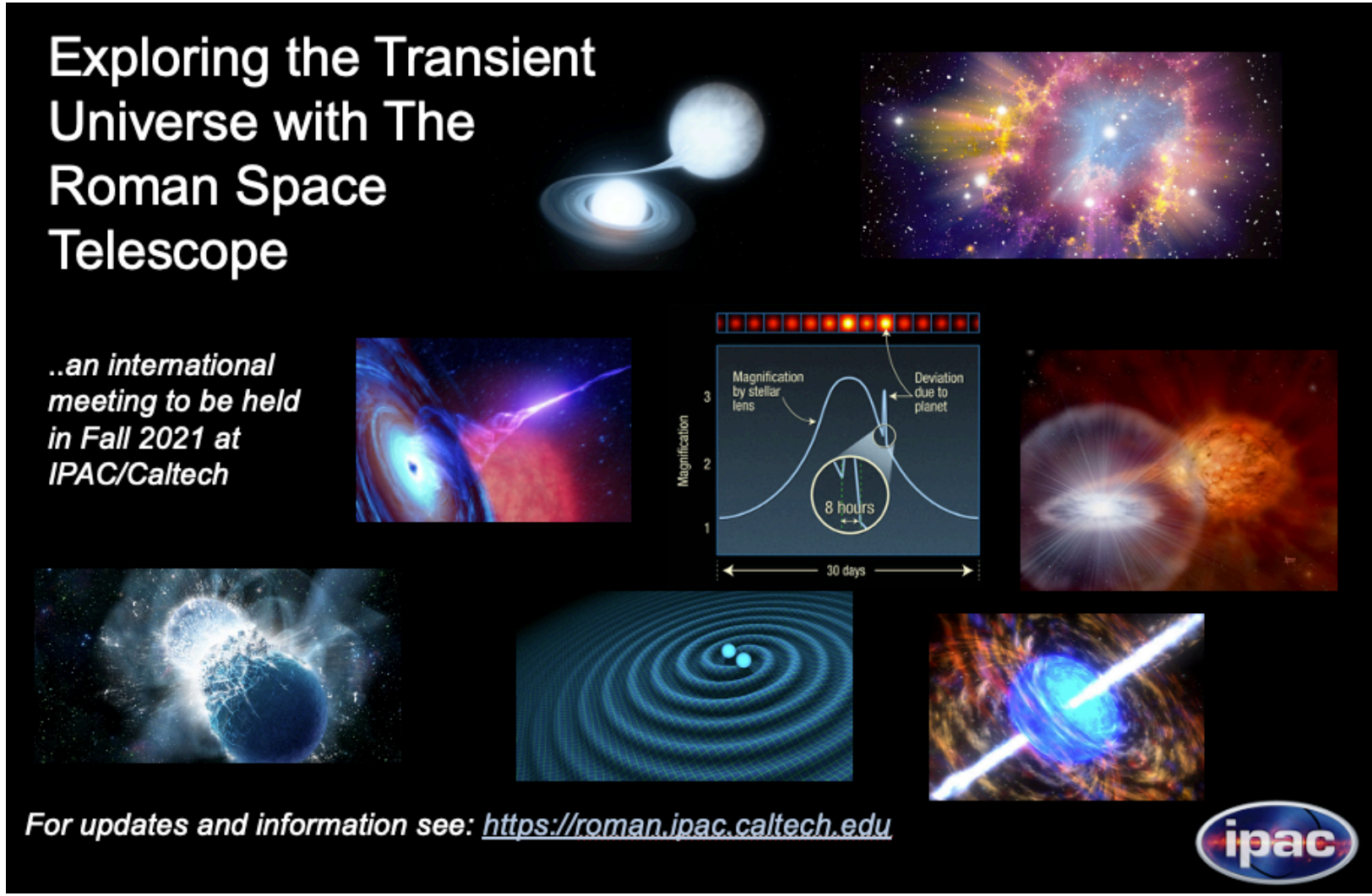
- (for SOC role at STScI) see also: https://www.stsci.edu/roman/about/roman-advisory-committee-rstac

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**

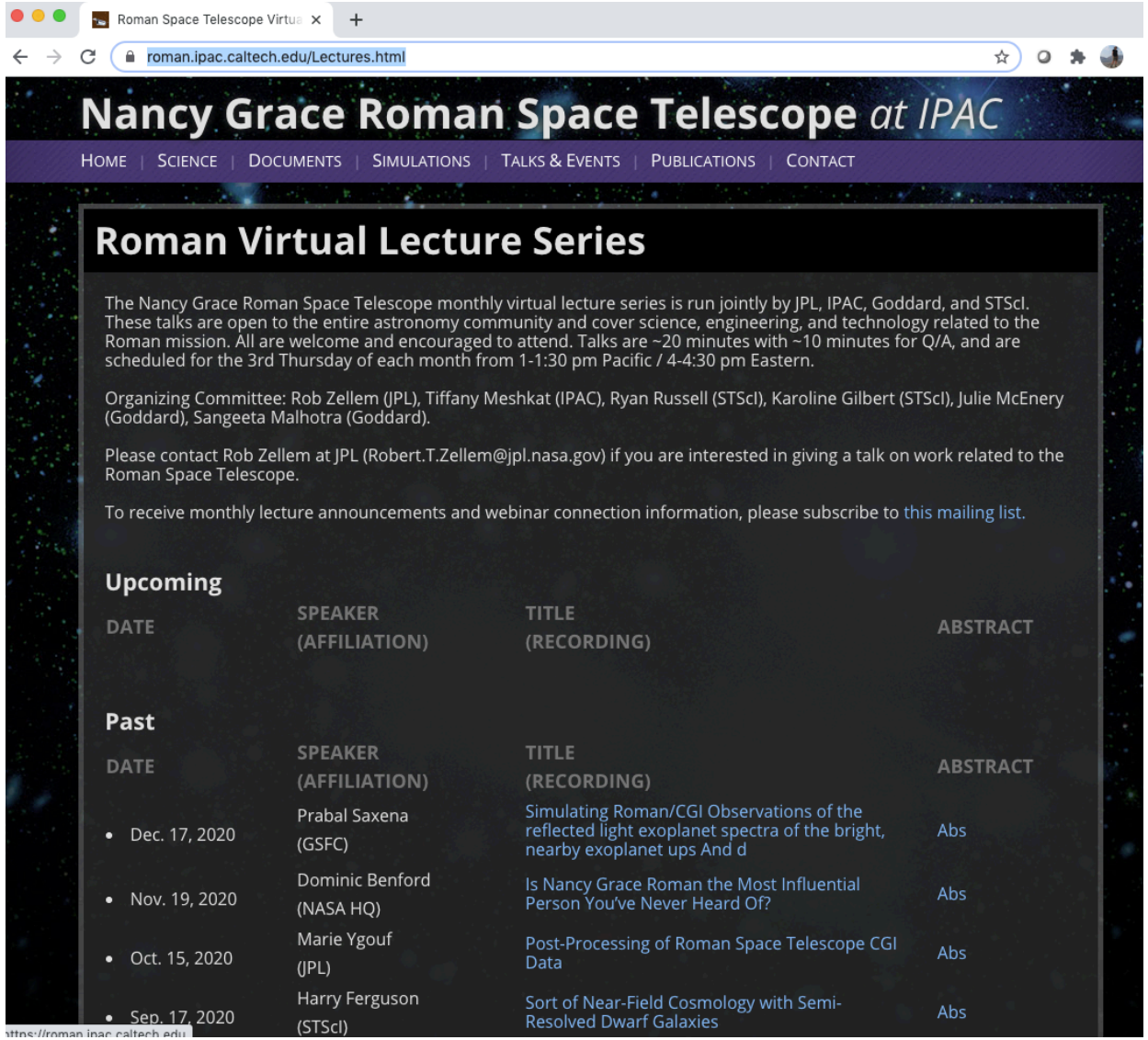
- Previous workshops
  - Galaxy Formation and Evolution in the Era of the Nancy Grace Roman Space Telescope (2020),
  - Science in our own backyard – exploring the Galaxy and the local group with WFIRST (2019)
  - Astronomy in the 2020s: Synergies with WFIRST (2017)



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**



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