



17 June 2026
Subaru UM (@ NAOJ)

Recent Activities of the Coronagraph Community Participation Program of the Nancy Grace Roman Space Telescope

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Shota Miyazaki, Kazuki Daikuhara, Toru Yamada (ISAS/JAXA), Takahiro Sumi (Osaka Univ.),
Community Participation Program (CPP) Team



• Roman Coronagraph Instrument

- **Tech demo:** The first space-based coronagraph with active wavefront control
- **Level 1 requirement:** $\leq 10^{-7}$ contrast at 6-9 λ/D from central star at $\lambda=575$ nm
 - Toward HWO (goal: 10^{-10})
- **Baseline:** 90 days (2,200 hours) during the first 18 months of the mission
- **No proprietary period:** Roman data will be made immediately available

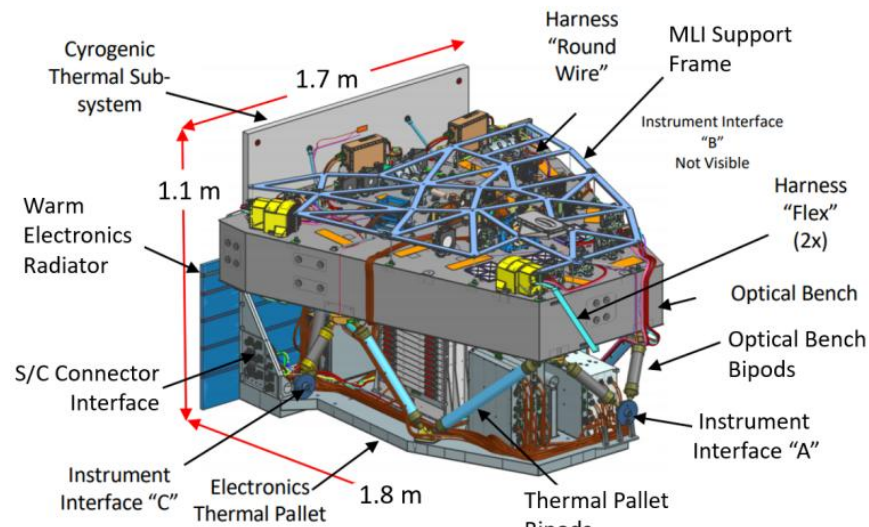
From Roman Coronagraph Primer, White Paper Town Hall Slides

Wavefront sensing
& control

Coronagraph

Imager, spectroscopy,
polarimetry

Post process



Kasdin et al. (2020), Proc. SPIE, 114431U

Credit: NASA/JPL-Caltech

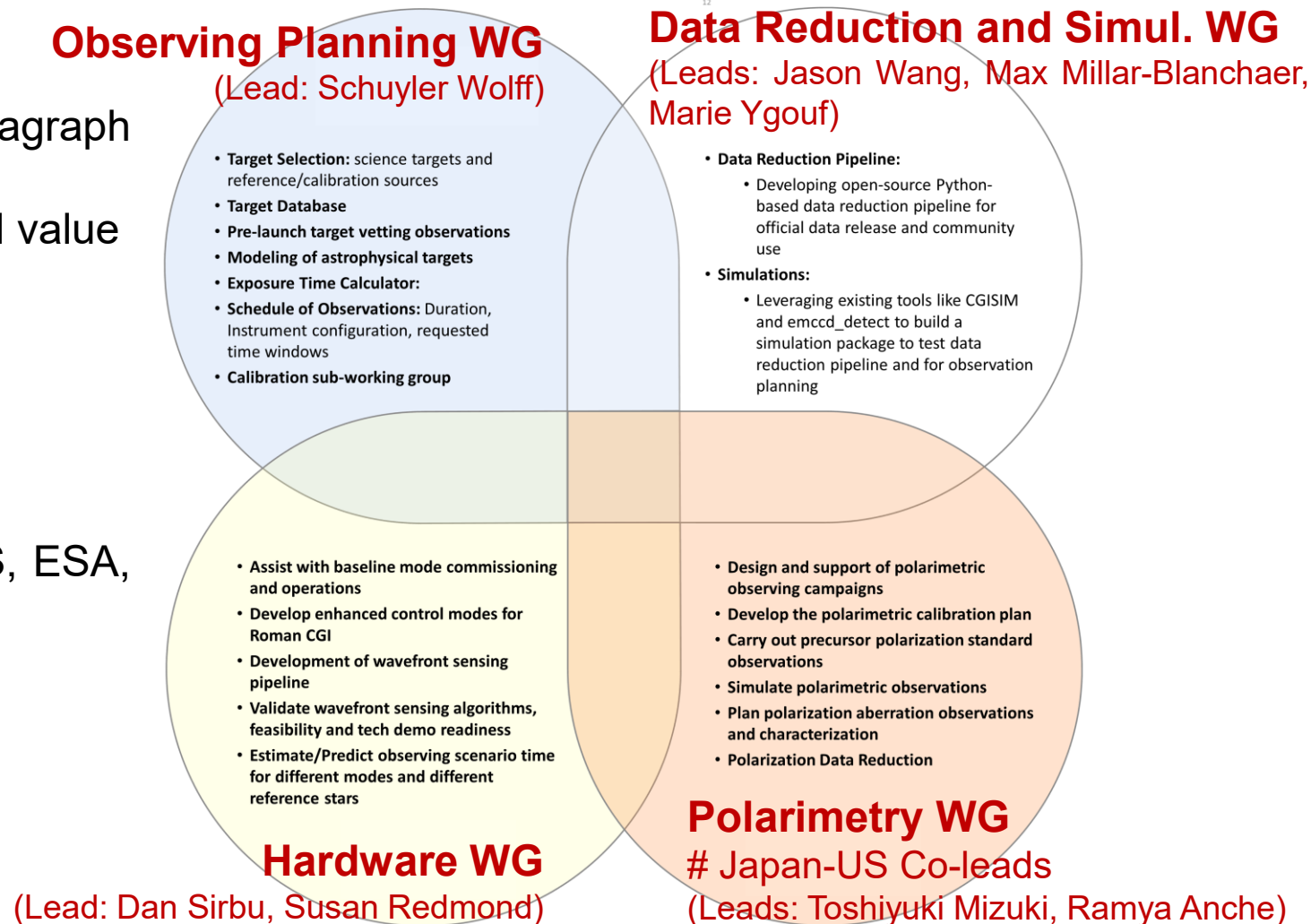




Roman Coronagraph CPP (since 2023)

- To prepare for the execution of the Coronagraph Instrument observation phase
- To maximize long-term science and technical value
- Organization (~150 members)
 - Chair: Vanessa Bailey (JPL)
 - Co-Chair: Schuyler Wolff (Arizona U.)
 - 11 US-based Teams
 - Members of the Roman Project Team
 - International Partner Teams from CNES, ESA, [JAXA](#), and MPIA
 - WGs (right) and sub-WGs (below)
 - Reference star (Lead: Justin Hom)
 - Calibration (Lead: Bijan Nemati)

CPP Team Architecture





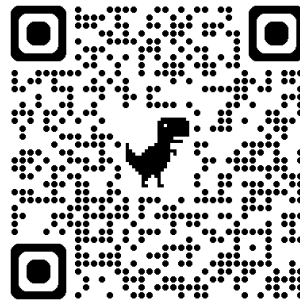
Community Inputs (See past GOPIRA/TENNET e-mails)

- **Early 2025: Community Interest Survey**

- Survey to broadly assess the astronomy community's interest in science observations and technology demonstration

- **Summer 2025: White Paper Call**

- Solicit community ideas on science observations and technology demonstration
- To be utilized in the observation planning
- **Full set of White Papers is now available online:** <https://zenodo.org/records/21203363>

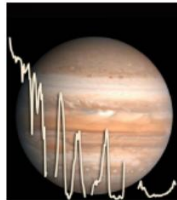


- Self-luminous exoplanets [1,2]



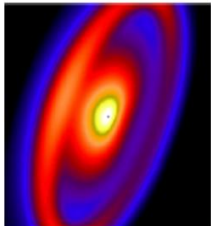
Gemini Planet Finder/Cosmic Diary

- Reflected light exoplanets [1,3]



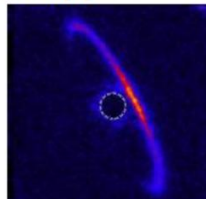
J. Madden/NASA

- Exozodiacal dust and debris disks [4]



J. Debes/STScI

- Polarization [4]



B. Mennesson/JPL

- **Scientific Opportunities**

- Young, self-luminous super-Jupiters
- Jupiter analogs (reflected light)
- Debris disks (Kuiper belt analogs)
- Exozodi disks (terrestrial zone dust)

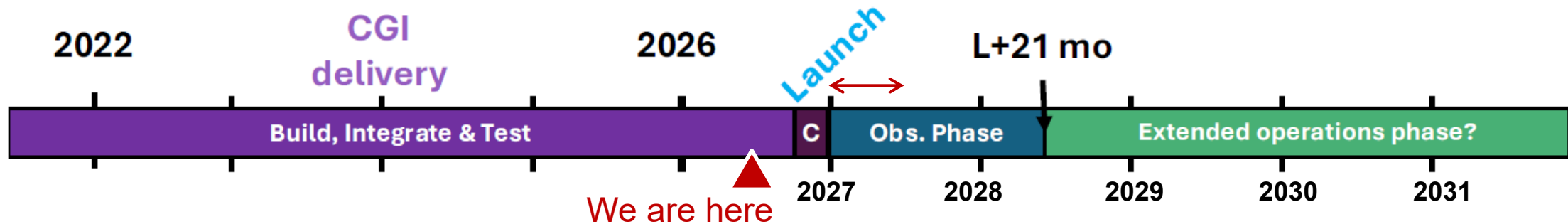
- **Technological Opportunities**

- Wavefront sensing & control techniques
- Post-processing techniques



Observation Planning

- **Obs. planning for the first 6 months of the “Obs. Phase” is currently underway**
 - Many members are working in the observation planning team
 - M. Kuzuhara (companions) and T. Mizuki (disks) are contributing from CPP JAXA Team



Launch: 30 Aug. 2026 (official launch *readiness* date)

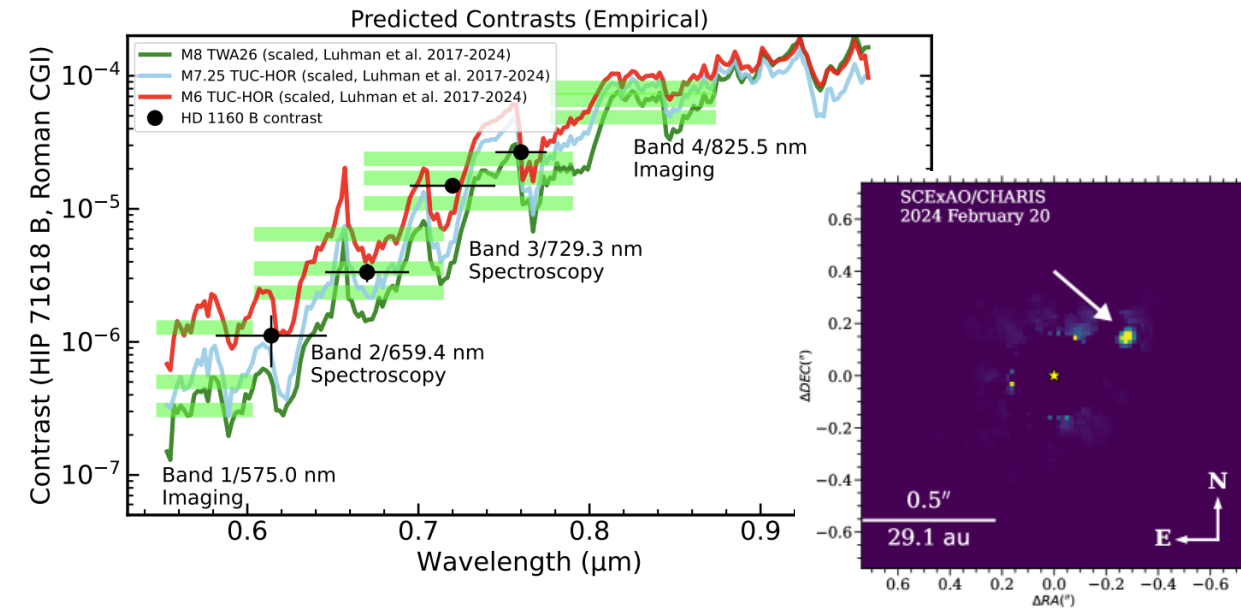
Commissioning Phase: 450 hours in first 90 days after launch

Obs. Phase: ~2,200 hours (90 days) baseline in next 18 months of mission

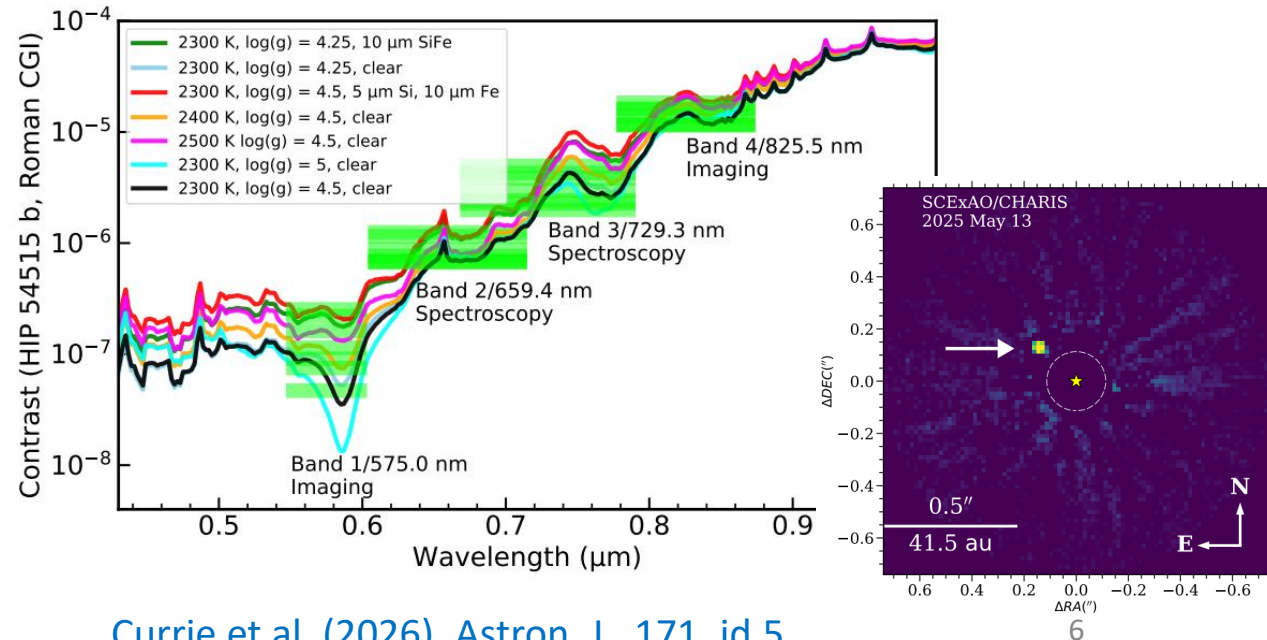
If successful, potential for extended operations phase (not guaranteed)

- **Target candidates for technology demonstration and scientific motivations**

- e.g., HIP 71618 B (Morsy+2025), HIP 54515 b (Currie+2026)
- OASIS Survey Program (PI. T. Currie / Deputy PI. M. Kuzuhara)
 - Thursday (tomorrow) talk by Thayne Currie (O37)



El Morsy et al. (2025), *Astrophys. J. Lett.*, 995, id.L4



Currie et al. (2026), *Astron. J.*, 171, id.5



Subaru Telescope for Roman Coronagraph

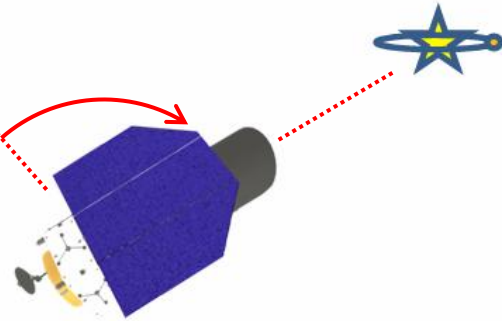
- **Reference star vetting**

- Need to observe reference stars for wavefront sensing and control before target obs.
- Subaru observations (T. Mizuki, M. Kuzuhara) to rule out binaries
- HiCIAO/SCEXAO archive data also utilized

- **White paper for Roman-Subaru Synergistic Observations**

- “The Exciting Opportunity of Subaru High-Contrast Observations for the Roman Coronagraphic Mission” (PI: M. Kuzuhara)
- Not selected, but ground-based precursor and follow-up obs. will be still important

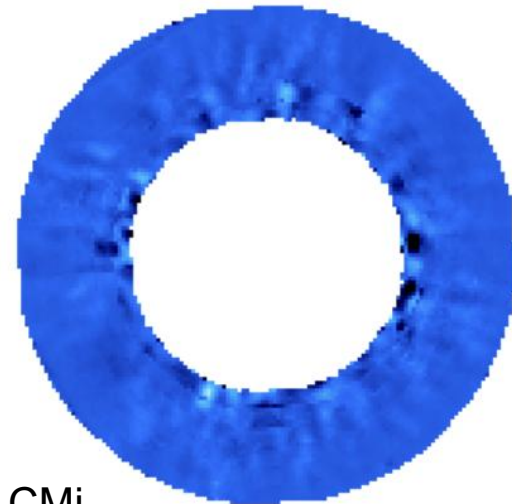
Reference Star
 $V < 3$
 $< \sim 1$ mas angular diameter
 Hot O/B
 WFSC & PSF reference



Target Star
 $V < 5$ (maybe $V < 7$; TBD)
 < 2 mas strongly preferred



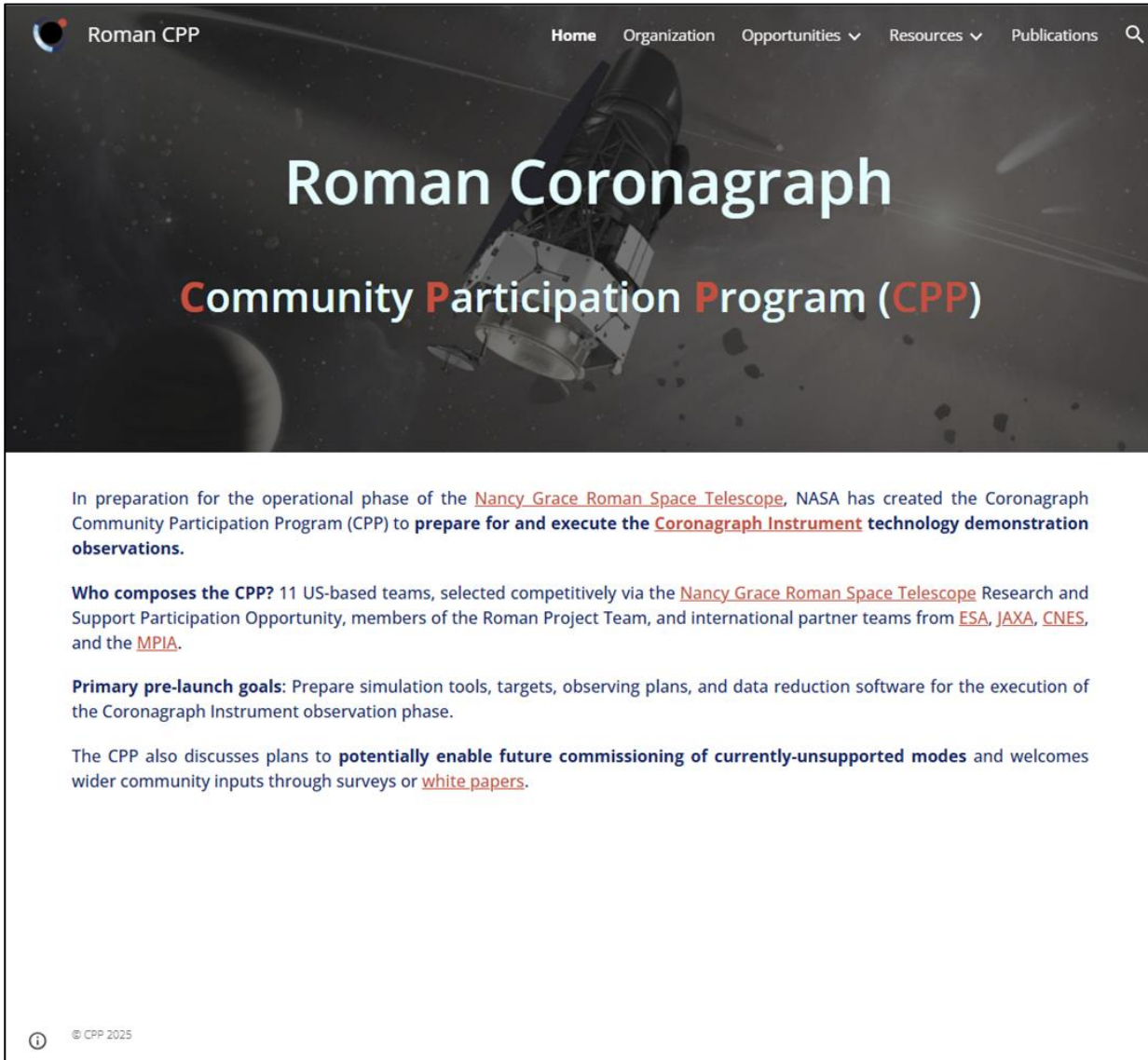
All stars must be **single**
 Nothing equally bright within $\sim 45''$;
 increasingly stringent at smaller
 separations



SCEXAO/CHARIS Image on Bet CMI
 (Reduction by M. Kuzuhara)

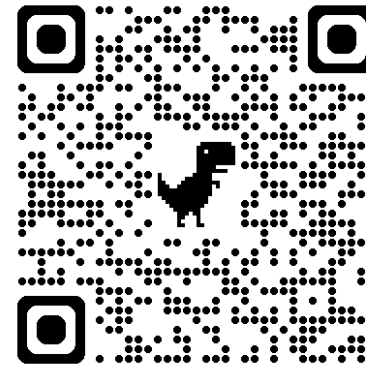


Thank you



The screenshot shows the homepage of the Roman Coronagraph Community Participation Program (CPP) website. The header includes the Roman CPP logo and navigation links: Home, Organization, Opportunities, Resources, and Publications. The main heading reads "Roman Coronagraph Community Participation Program (CPP)". Below this, a paragraph states: "In preparation for the operational phase of the [Nancy Grace Roman Space Telescope](#), NASA has created the Coronagraph Community Participation Program (CPP) to prepare for and execute the [Coronagraph Instrument](#) technology demonstration observations." Another paragraph asks "Who composes the CPP?" and lists 11 US-based teams, members of the Roman Project Team, and international partner teams from [ESA](#), [JAXA](#), [CNES](#), and the [MPIA](#). A third paragraph lists "Primary pre-launch goals" as preparing simulation tools, targets, observing plans, and data reduction software. A final paragraph mentions plans to "potentially enable future commissioning of currently-unsupported modes" and welcomes wider community inputs through surveys or [white papers](#). The footer includes a copyright notice: "© CPP 2025".

Roman Coronagraph CPP Website:
Information, documents, resources etc. available
<https://sites.google.com/view/roman-cpp/home>



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Deputy PoC: Masayuki Kuzuhara (ABC)