

# AURA Roman Rubin Synergies Working Group

This Working Group is charged with identifying science questions that can be addressed by exploiting synergies between the two new major survey facilities coming this decade: The Vera C. Rubin Observatory (Rubin) and the NASA Nancy Grace Roman Space Telescope (Roman). The Working Group reports to the STScI Director, Ken Sembach, and the NOIRLab Director, Pat McCarthy.

Rubin and Roman will transform our view of the wide-field sky, with similar sensitivities, but complementary in wavelength, spatial resolution, and time domain coverage. Rubin provides wide, deep, multi-band seeing-limited optical imaging with a daily cadence of observations. Roman provides wide, deep, multi-band diffraction-limited near-infrared imaging with grism and prism low-resolution spectroscopic capabilities. Each of these projects has defined their individual core science goals and technical requirements. In addition, substantial effort has been made towards examining how these surveys could be combined to improve our measurements of dark energy and dark matter, e.g., improvements in photometric redshifts, weak-lensing shear measurements, the galaxy power spectrum, galaxy cluster selection, time-delays in strong-lensing systems, and SN Ia distances.

With this working group, we aim to explore Roman-Rubin synergies beyond the well-covered topic of Dark Energy. The Working Group will investigate **which** general astrophysics areas would benefit most from Roman-Rubin joint analysis, **what** science questions could be uniquely be addressed by Roman-Rubin working together, and **how** the coordination of observations, data analysis and data archiving could best realize these synergies.

WG members: Suvi Gezari (STScI, Chair), Misty Bentz (Georgia State), Edo Berger (Harvard), Kishalay De (MIT), Decker French (University of Illinois), Robert Jedicke (Hawaii IfA), Aaron Meisner (NOIRLab), Michelle Ntampaka (STScI), Ekta Patel (Berkeley), Dan Perley (Liverpool), Robyn Sanderson (UPenn/Flatiron), Irene Shvaei (Arizona)

Ex-officio representatives: Željko Ivezić (Rubin), Harry Ferguson (Roman), Neill Reid (STScI), Beth Willman (AURA, NOIRLab)

## 1. The Observatories

### Vera C. Rubin Observatory

High level information is available on this [Factsheet](#)

For further information on the Rubin Observatory science goals see [here](#); additional technical information is available [here](#).

### Nancy Grace Roman Space Telescope

High level information is available on this [Factsheet](#) and [here](#) ; information on the Roman partners in given [here](#).

For further information on the Roman Space Telescope science goals see [here](#); additional information on technical resources is linked from [here](#).

## 2. Community Pitches

The working group has issued a call for "science pitches" from the community to be submitted [here](#) by August 31, 2021.

Some example "science pitches" from the Working Group shown [here](#)

Please contact [romanrubin@stsci.edu](mailto:romanrubin@stsci.edu) with any questions.

## 3. The Whitepaper

The working group has submitted their Whitepaper to the STScI and NOIRLab Directors, and have posted to the [arXiv](#)