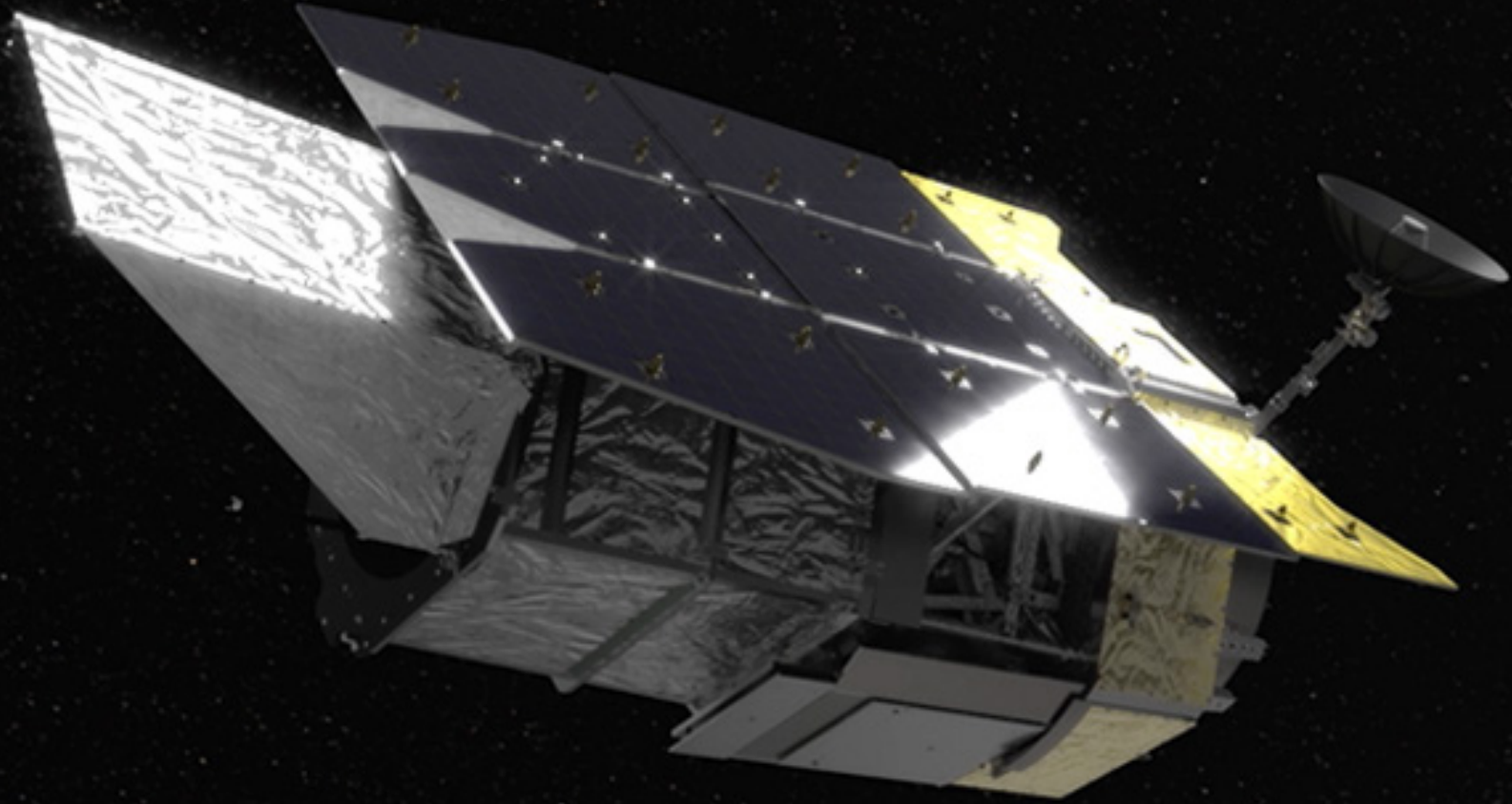




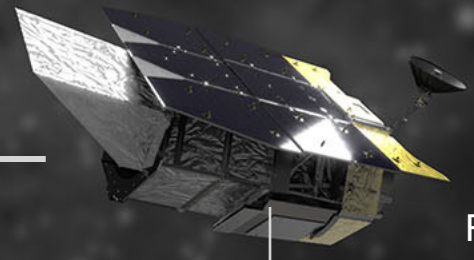
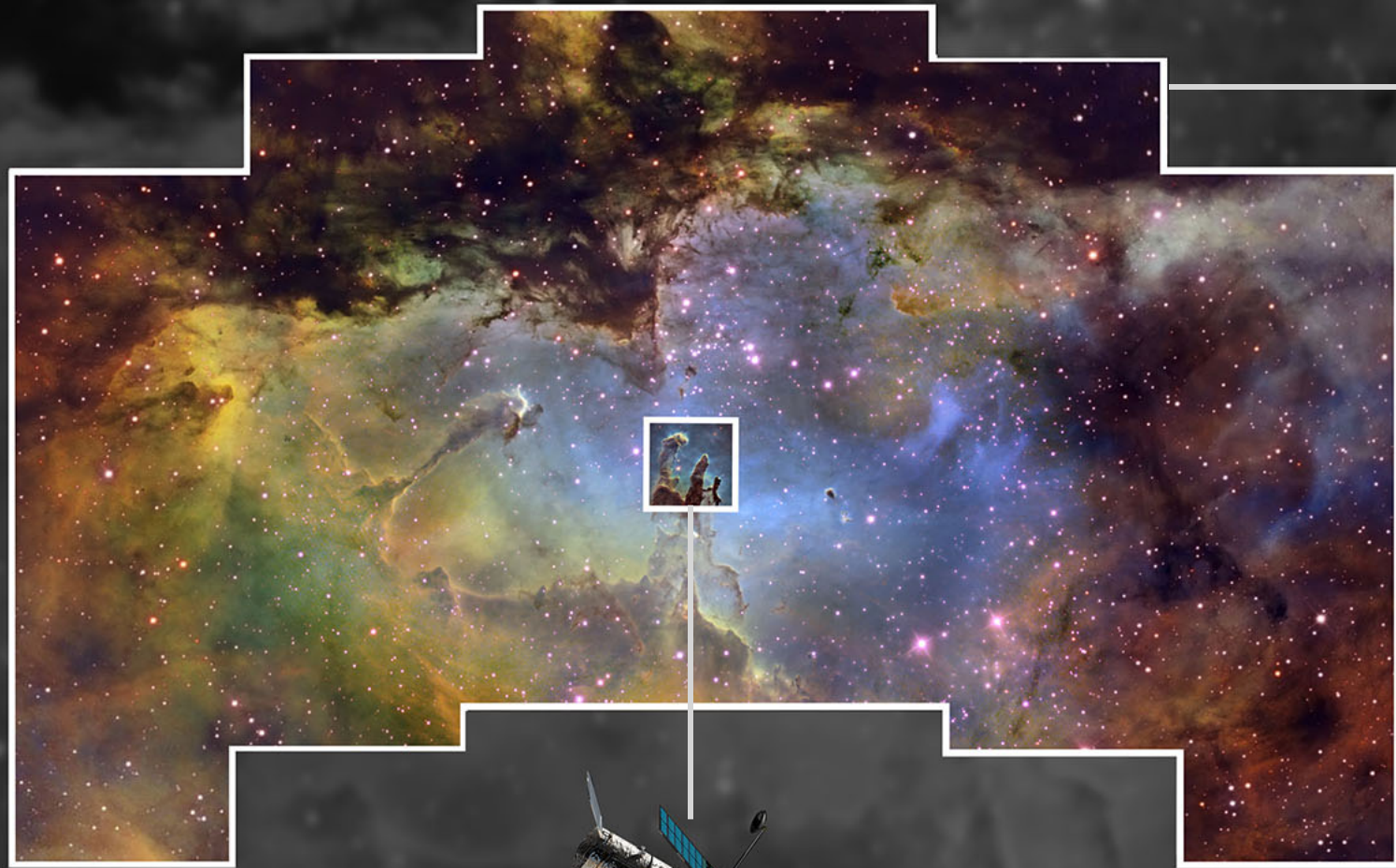
NANCY GRACE  
**R.ÖMAN**



SPACE TELESCOPE



EXPANDING OUR VIEW



ROMAN

# The Bigger Picture

200x HUBBLE'S INFRARED VIEW



HUBBLE

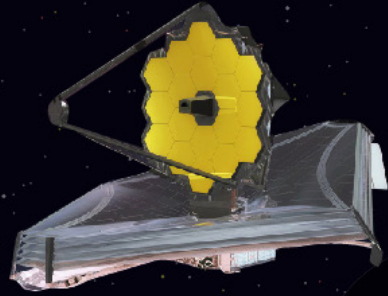
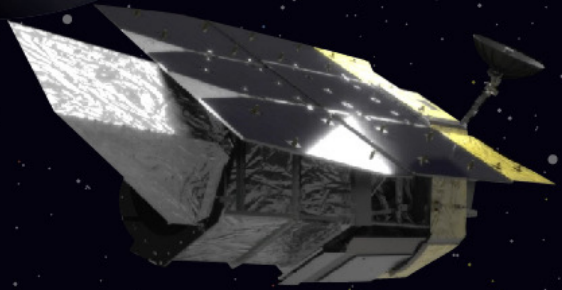
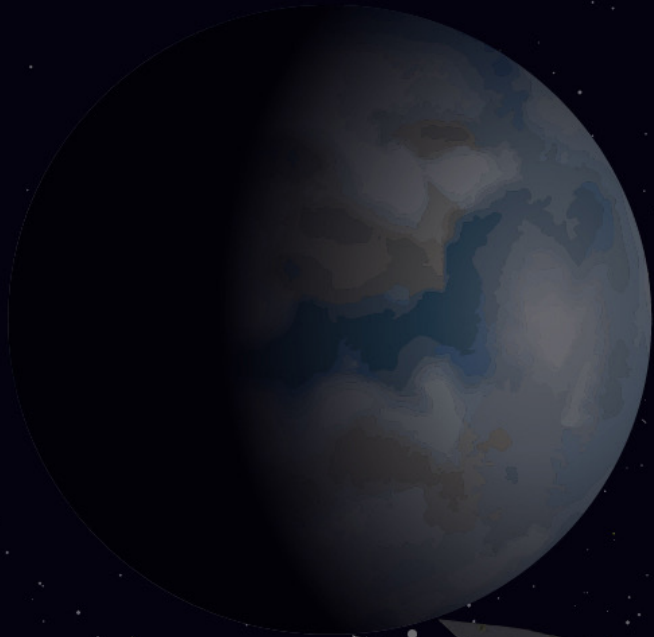




# Nancy Grace Roman

NASA's First Chief of Astronomy

1925–2018



**by May 2027**  
**ROMAN**

**2021**  
**WEBB**

**2003**  
**SPITZER**

**1999**  
**CHANDRA**

**1990**  
**HUBBLE**

*"Scientific research and engineering is a continuous series of solving puzzles."*

-Nancy Grace Roman

**Major US Space-based Missions**

# MIRRORS



HUBBLE

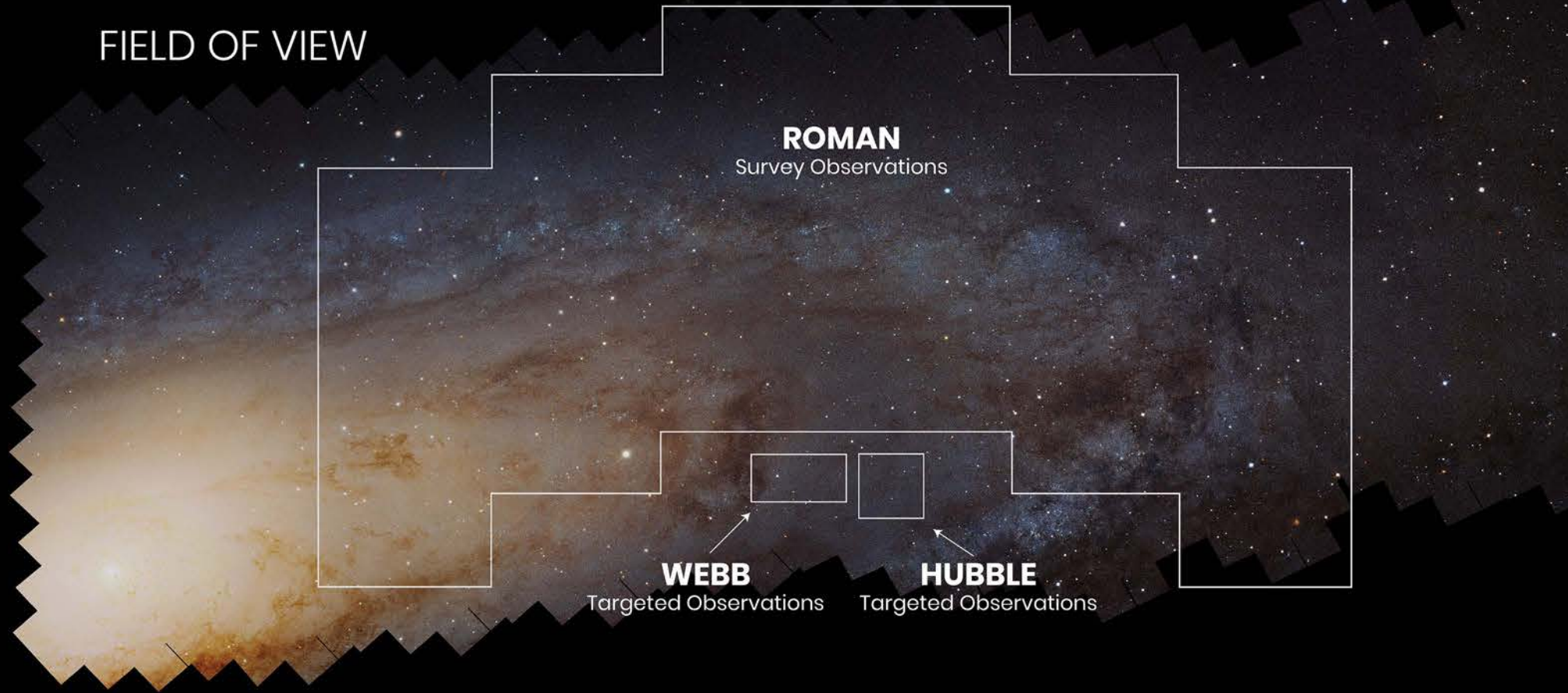


ROMAN



WEBB

# FIELD OF VIEW

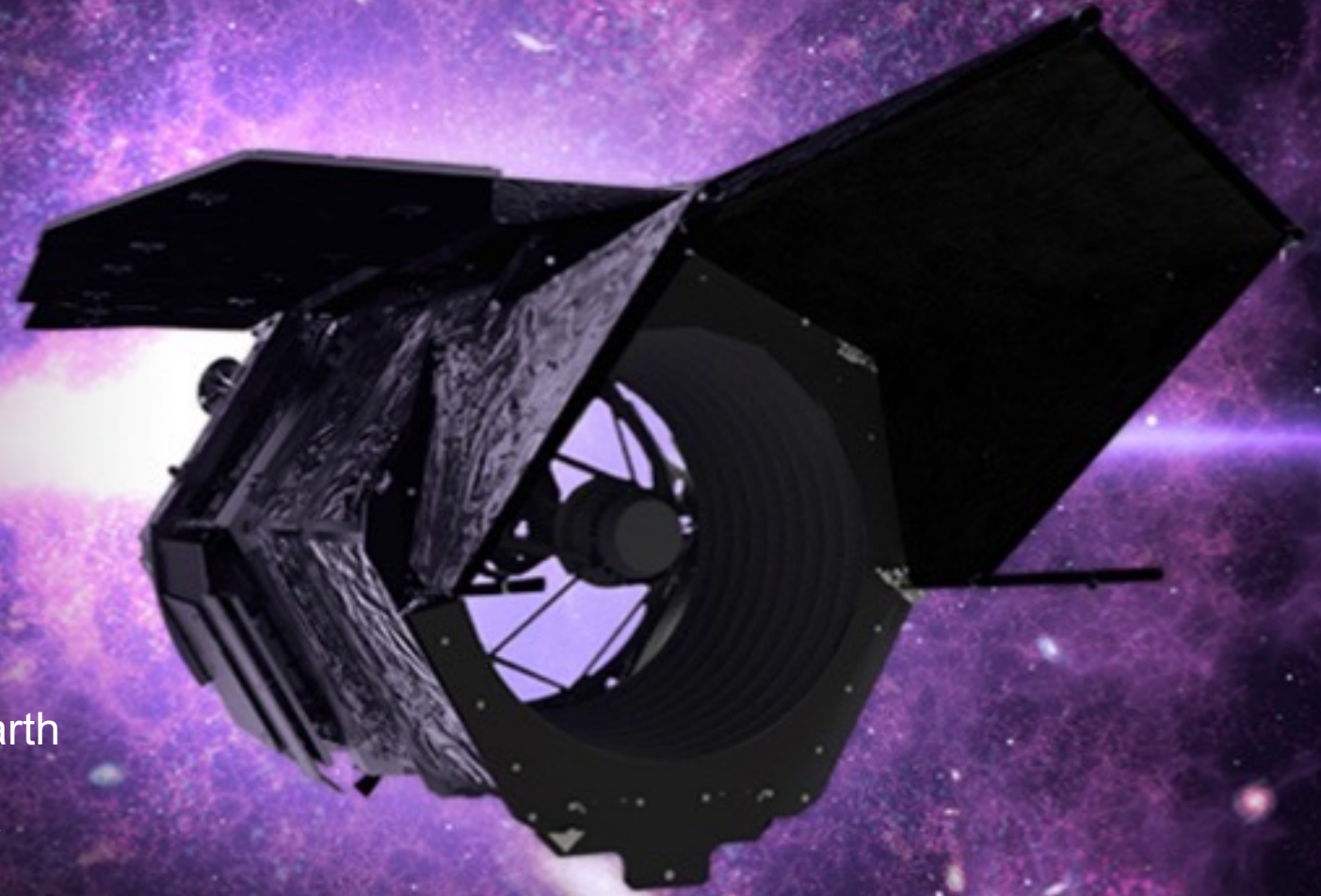


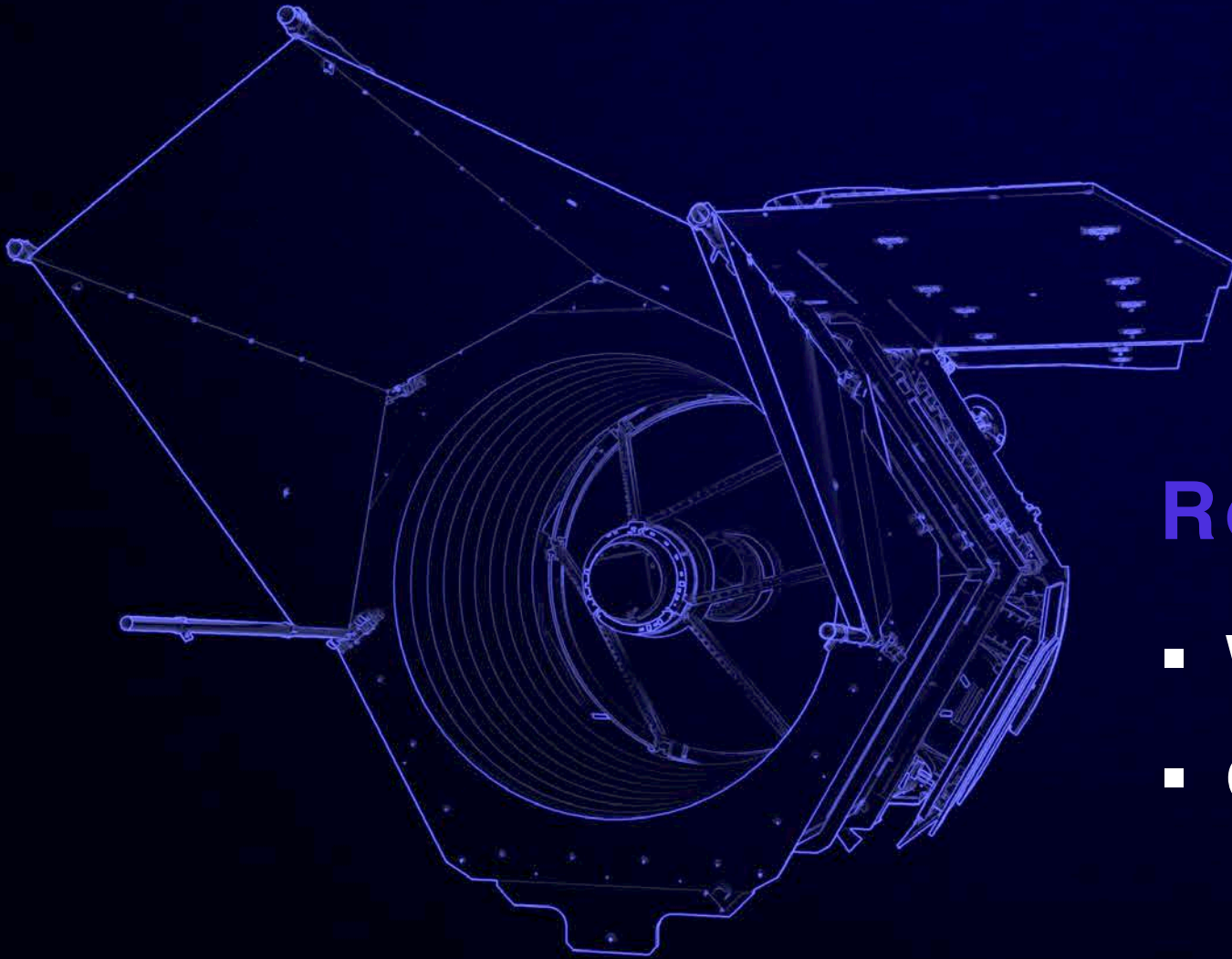
# WAVELENGTH



## Roman Facts & Figures

- 300-megapixel camera
- 1 advanced coronagraph
- 5-year primary mission
- 930,000 miles (1.5 million km) from Earth
- 410 lbs (186 kilograms) primary mirror

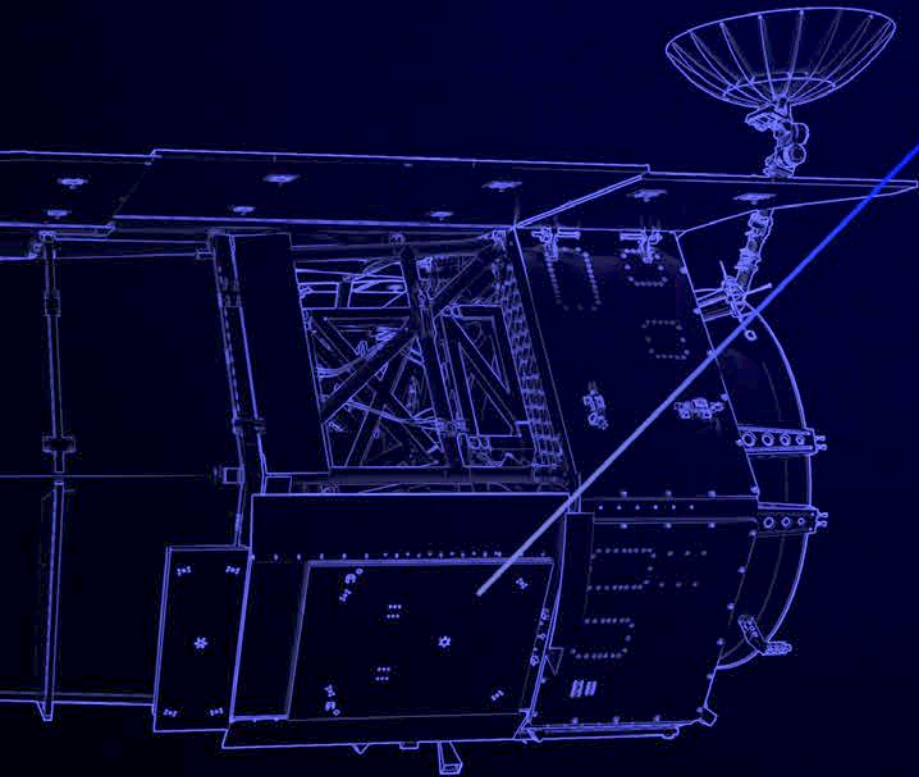




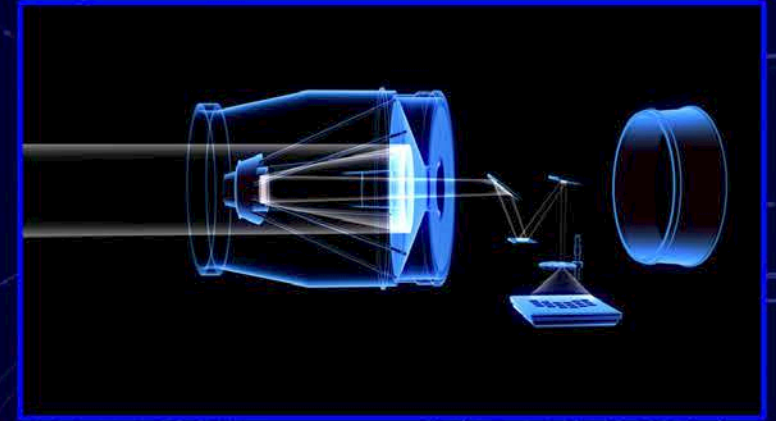
## Roman Instruments

- Wide Field Instrument
- Coronagraph Instrument

# WIDE FIELD INSTRUMENT



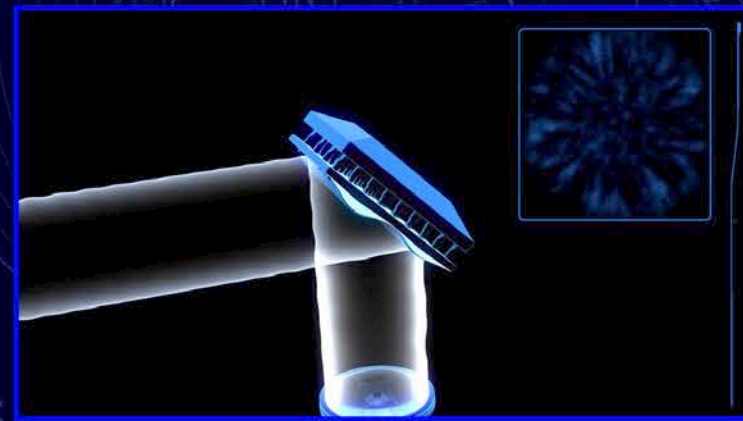
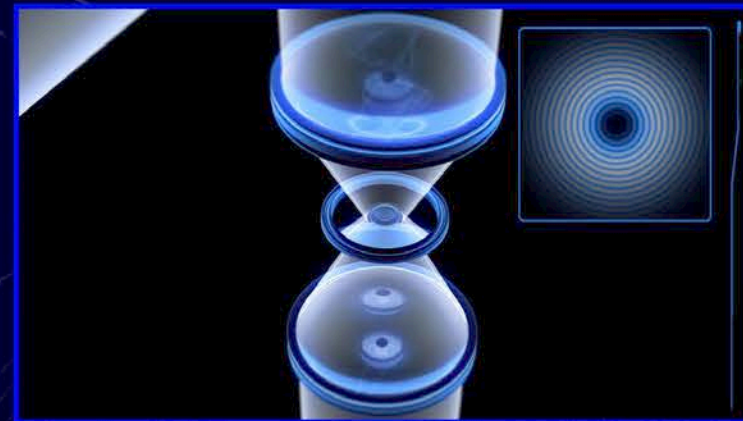
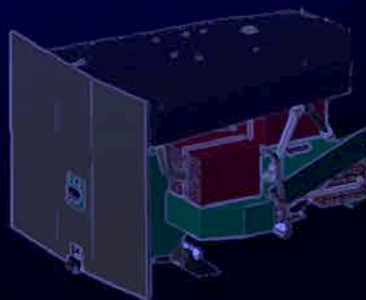
- Survey-style observations
- 18 near-infrared light detectors
- 300-megapixel camera
- 200x Hubble's infrared field of view
- 2 spectroscopic capabilities





# CORONAGRAPH INSTRUMENT

- Technology demonstration
- First-of-its-kind design in space
- Direct detection of faint exoplanets



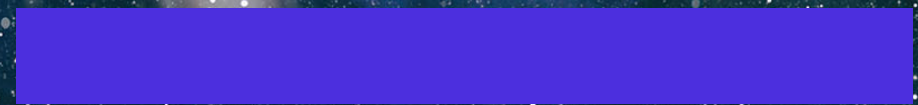


**SCIENCE  
WITH  
ROMAN**



# Planets

by the thousands



The full spectrum of  
**EXOPLANET DIVERSITY**



Planets by  
the thousands



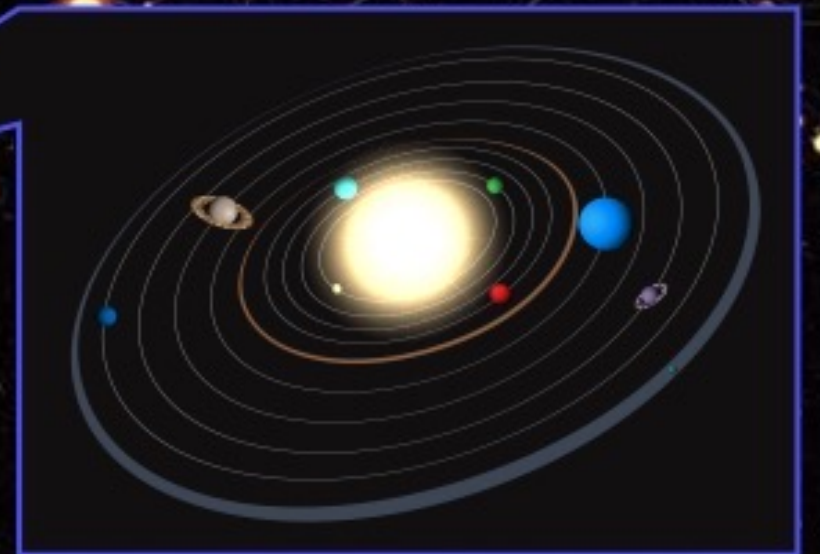
Stars by  
the billions



Galaxies by  
the millions



Fundamental  
physics





Planets by  
the thousands



Stars by  
the billions

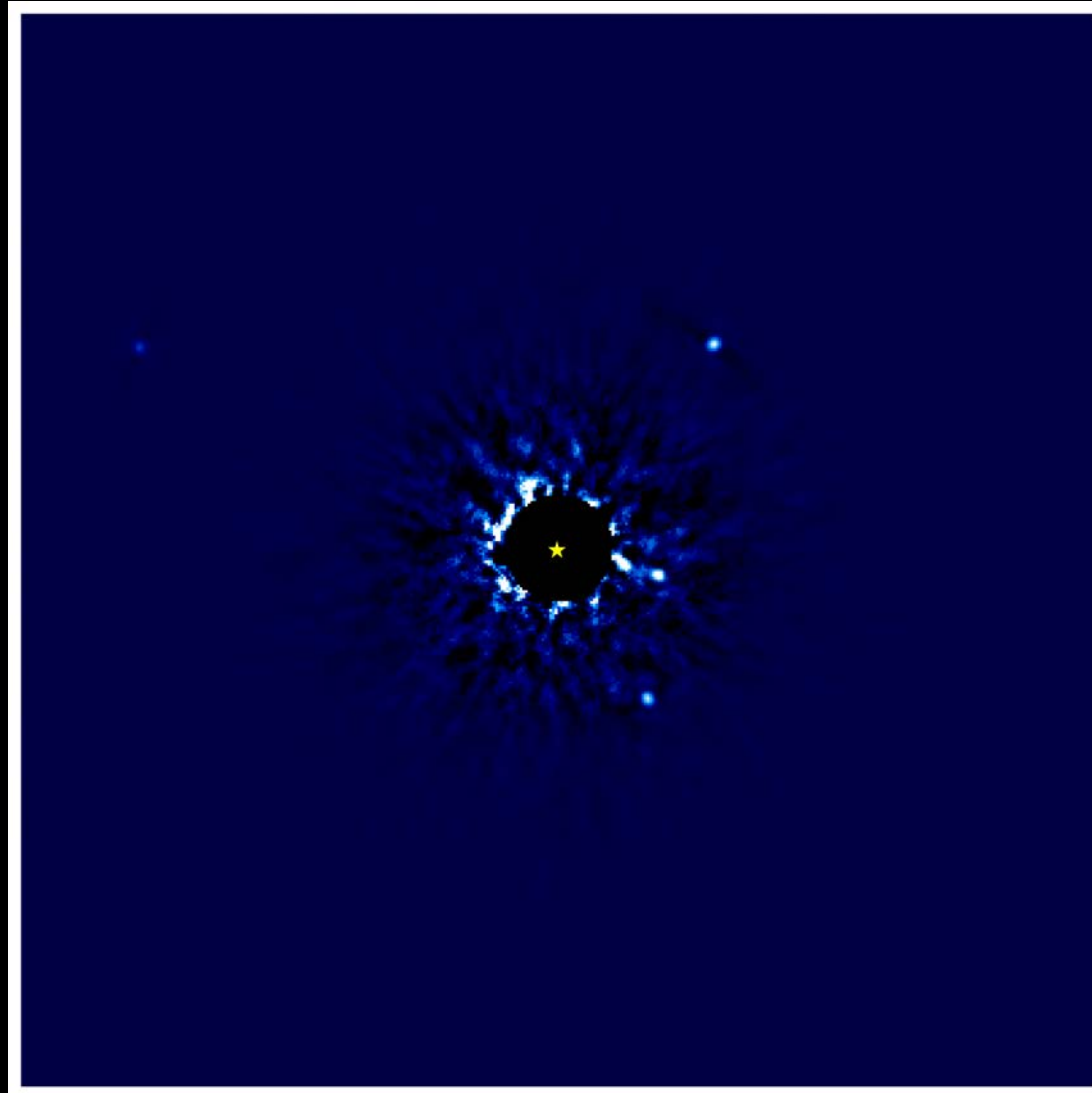


Galaxies by  
the millions



Fundamental  
physics

Advancing planet-detection  
technology





Planets by  
the thousands



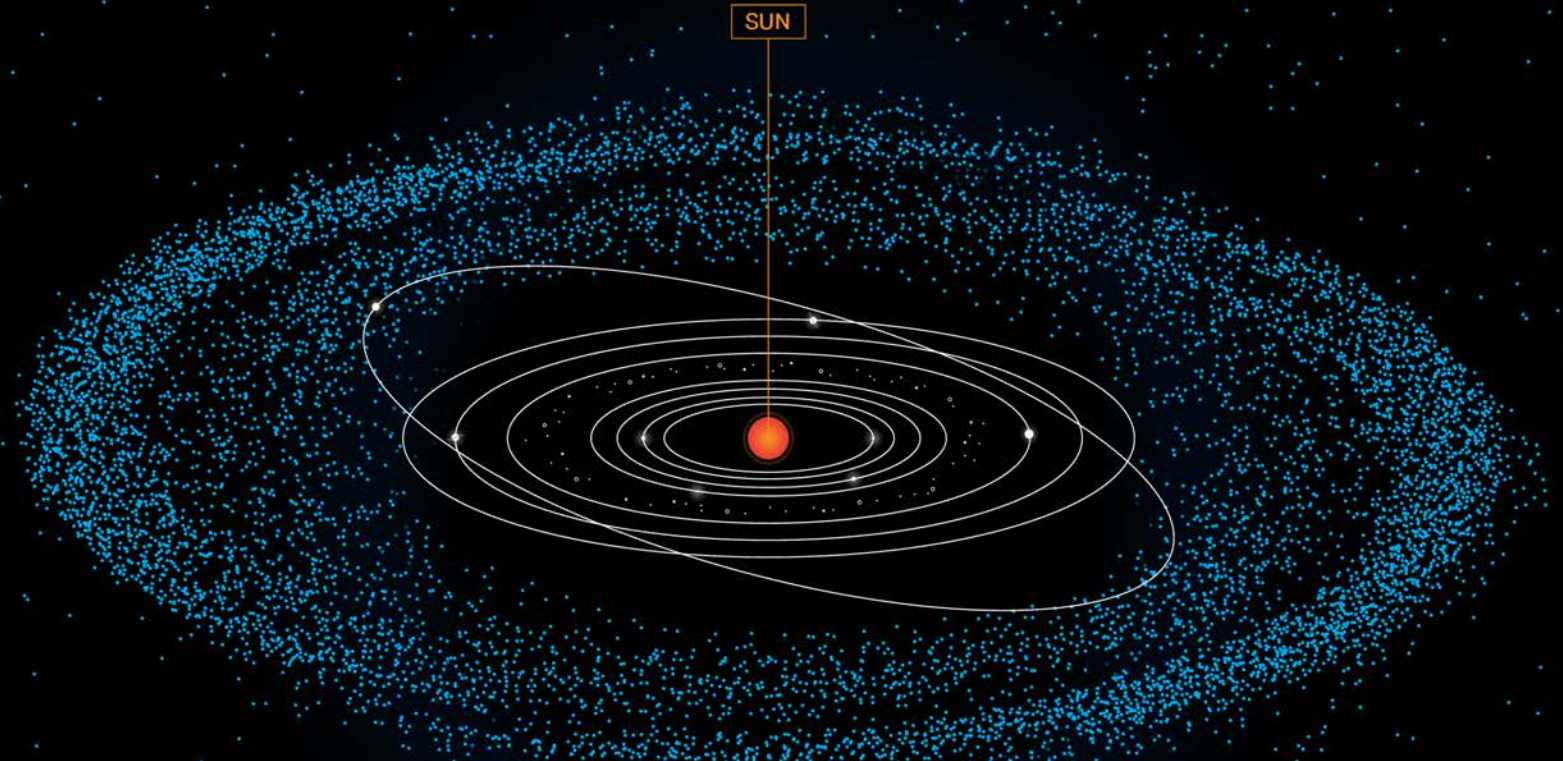
Stars by  
the billions



Galaxies by  
the millions



Fundamental  
physics



Our cosmic neighborhood

A long-exposure photograph of a starry night sky, showing numerous curved star trails in shades of blue, cyan, and white, creating a sense of motion and depth. The trails are most prominent in the lower-left and upper-right quadrants, curving towards the center.

# Stars

by the billions

A solid, horizontal purple bar that spans the width of the text area below the subtitle.



Planets by  
the thousands



Stars by  
the billions

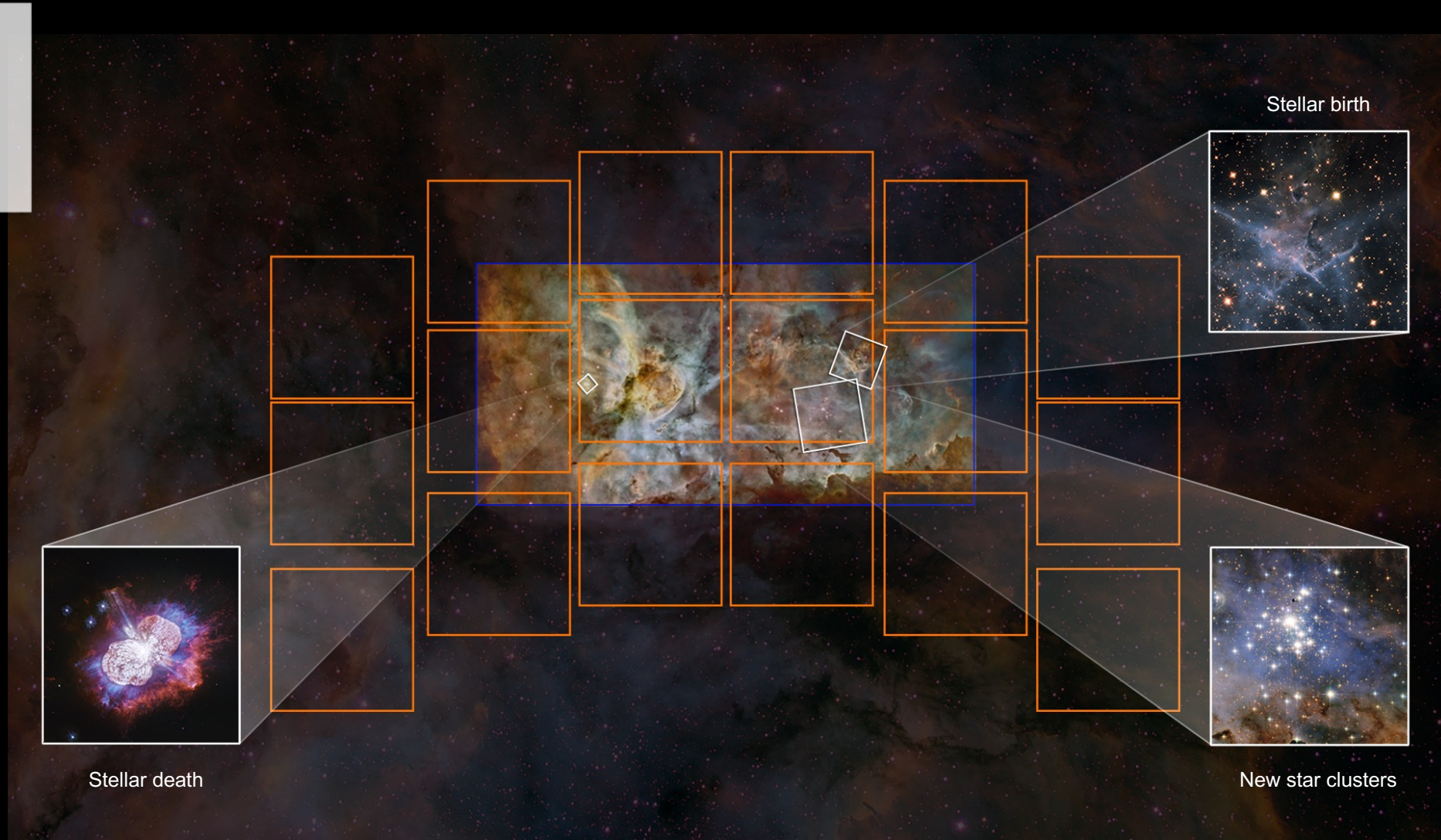


Galaxies by  
the millions



Fundamental  
physics

# The Stellar Lifecycle in a Snapshot







Planets by  
the thousands



Stars by  
the billions



Galaxies by  
the millions



Fundamental  
physics

**The crowded core**  
of the Milky Way galaxy



Planets by  
the thousands



Stars by  
the billions

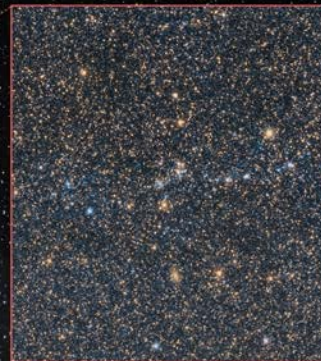
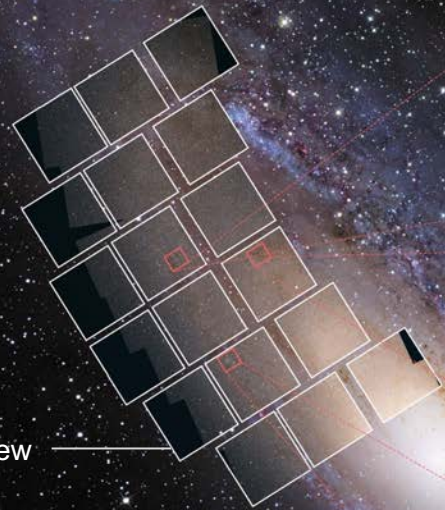


Galaxies by  
the millions



Fundamental  
physics

Roman field of view



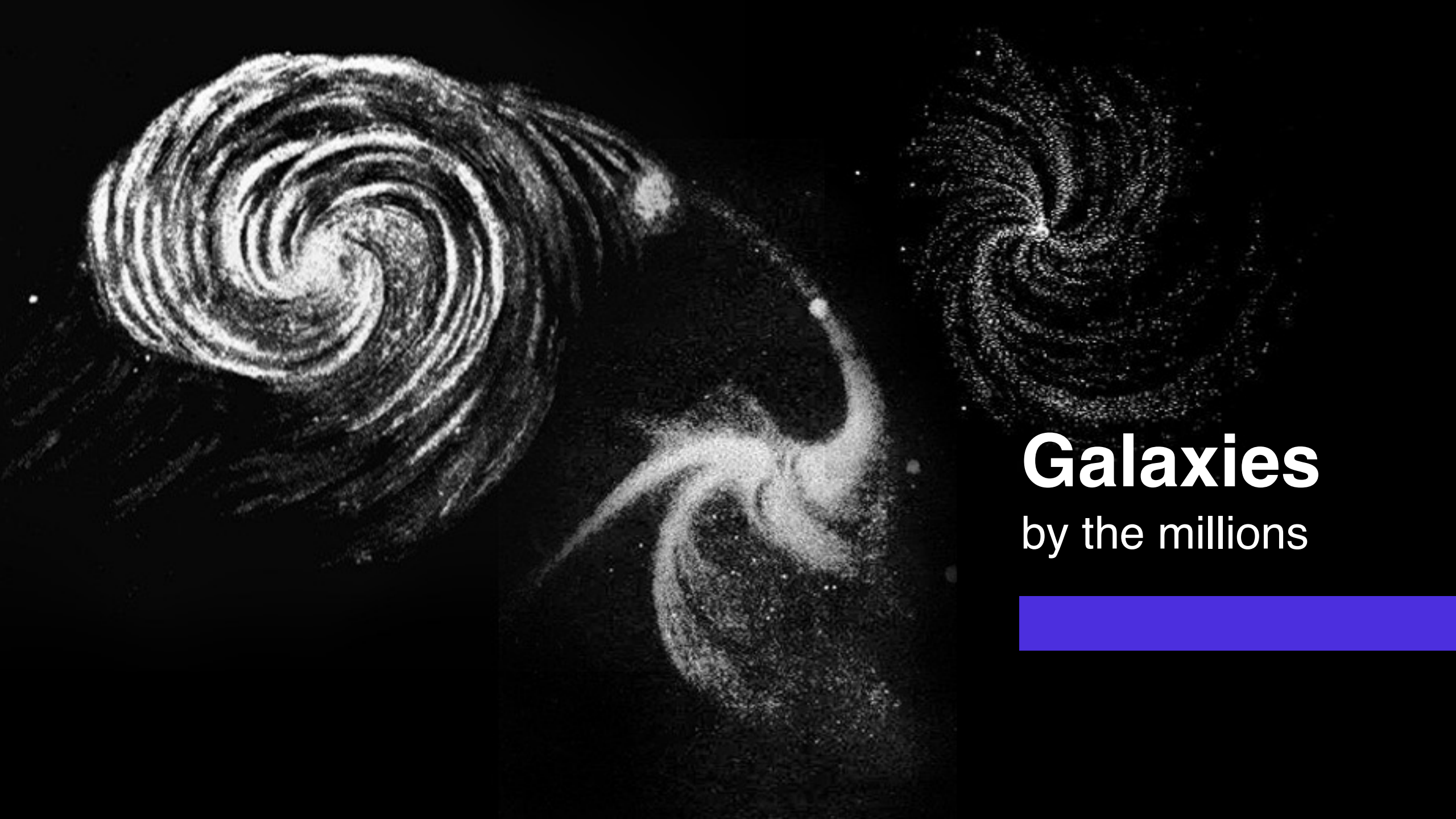
star cluster and  
background galaxy



dust cloud



young star cluster



# Galaxies

by the millions





Planets by the thousands



Stars by the billions



Galaxies by the millions

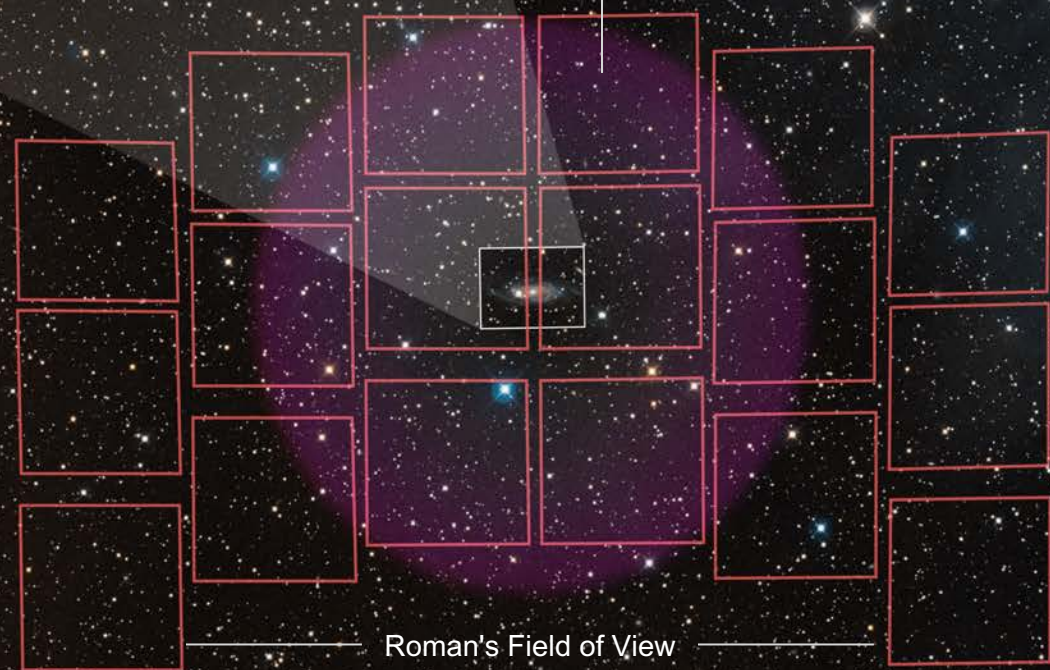


Fundamental physics

# The Local Universe



Hubble's view of Rubin's galaxy





Planets by the thousands



Stars by the billions

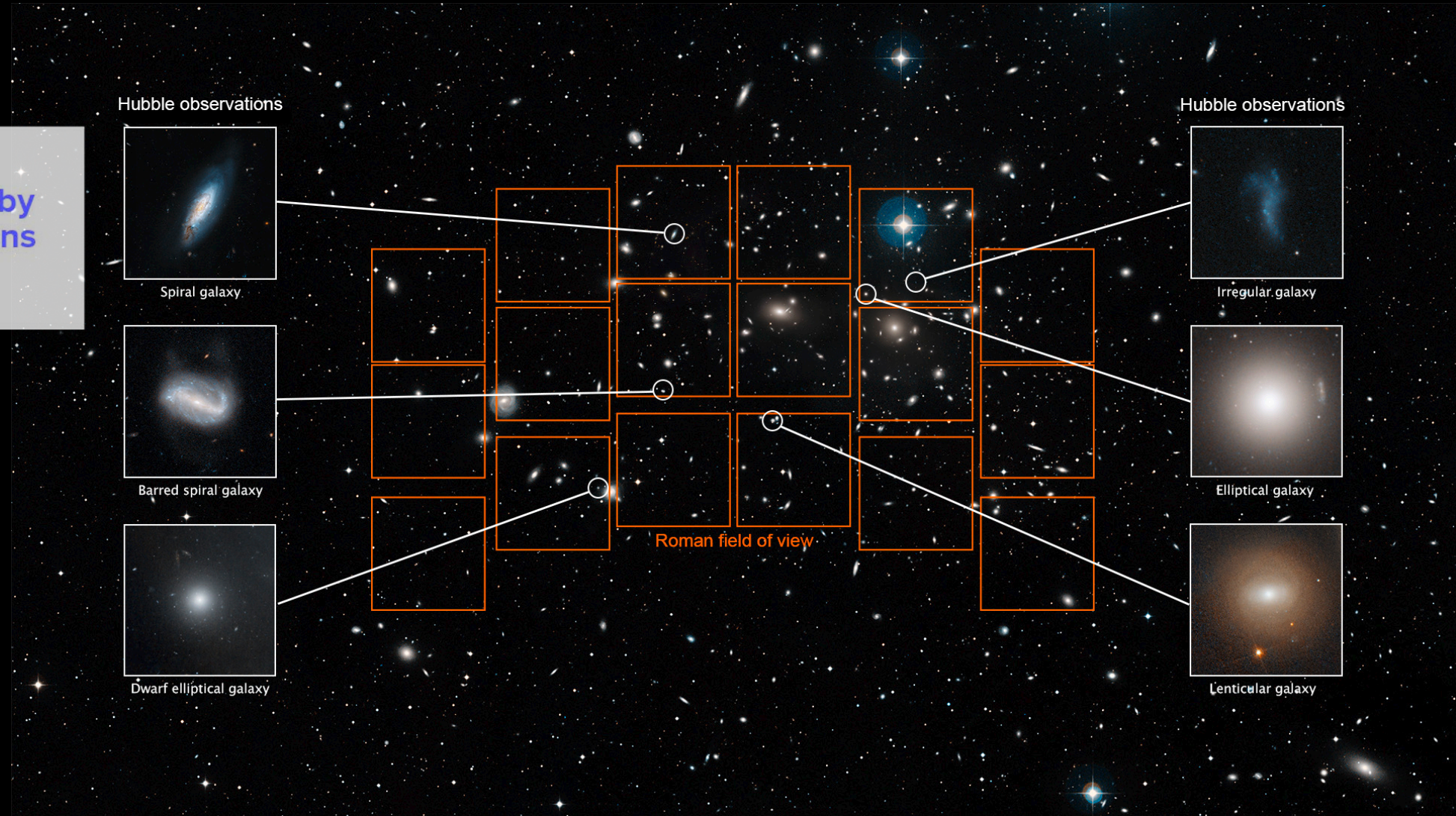


Galaxies by the millions



Fundamental physics

# Galactic Diversity





Planets by  
the thousands



Stars by  
the billions



Galaxies by  
the millions



Fundamental  
physics

# The Early Universe




Hubble Ultra Deep Field

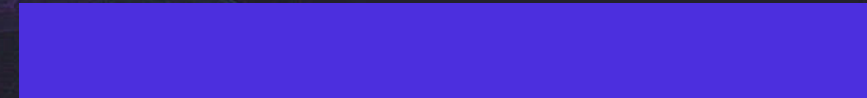
Hubble Survey Area



Roman field of view

The background features a complex, abstract pattern of glowing, translucent spheres and swirling lines in shades of purple, blue, and green. The spheres vary in size and opacity, creating a sense of depth and movement. The lines are thin and delicate, weaving through the space and connecting the spheres. The overall effect is reminiscent of a quantum field or a complex network of particles.

# Fundamental Physics





Planets by the thousands



Stars by the billions

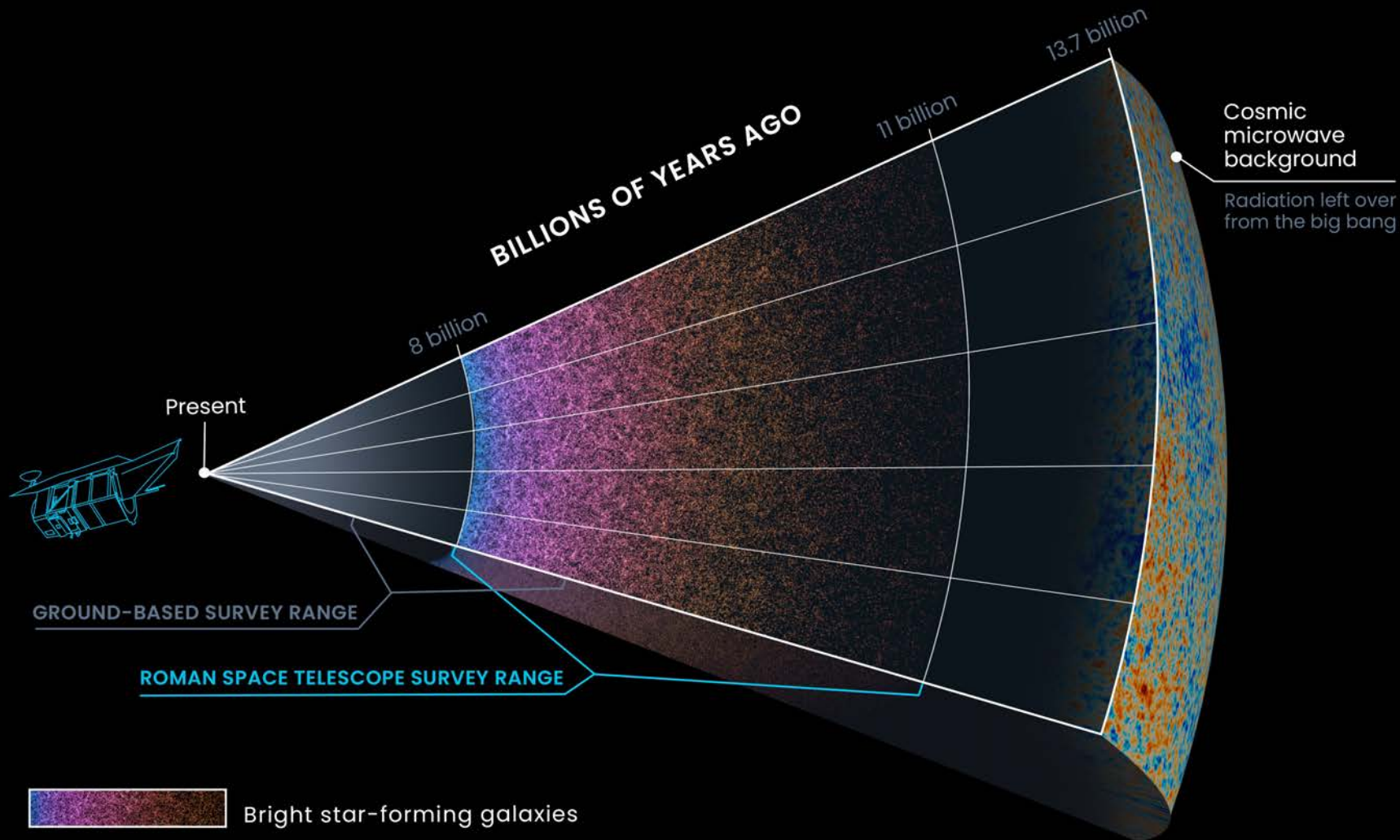


Galaxies by the millions



Fundamental physics

# Structure of the Universe







Planets by  
the thousands



Stars by  
the billions



Galaxies by  
the millions



**Fundamental  
physics**

## The Mystery of Dark Energy

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SN 2011fe



Planets by  
the thousands



Stars by  
the billions




Galaxies by  
the millions



**Fundamental  
physics**

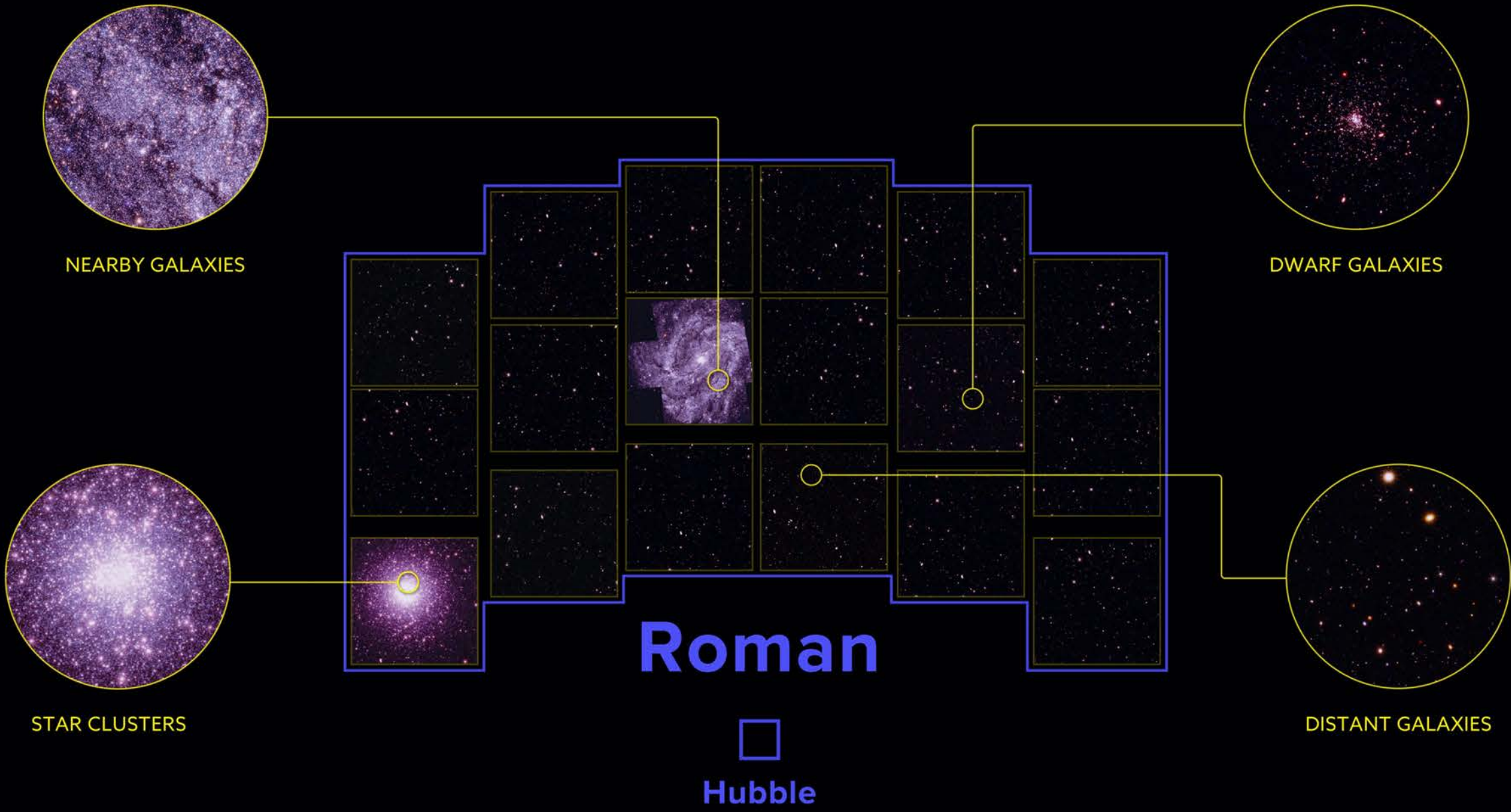
**The Nature of Dark Matter**



# New Physics

Expect the Unexpected

---



# BIG DATA

172

Terabytes

Hubble's data archive

30 years (1990–2020)

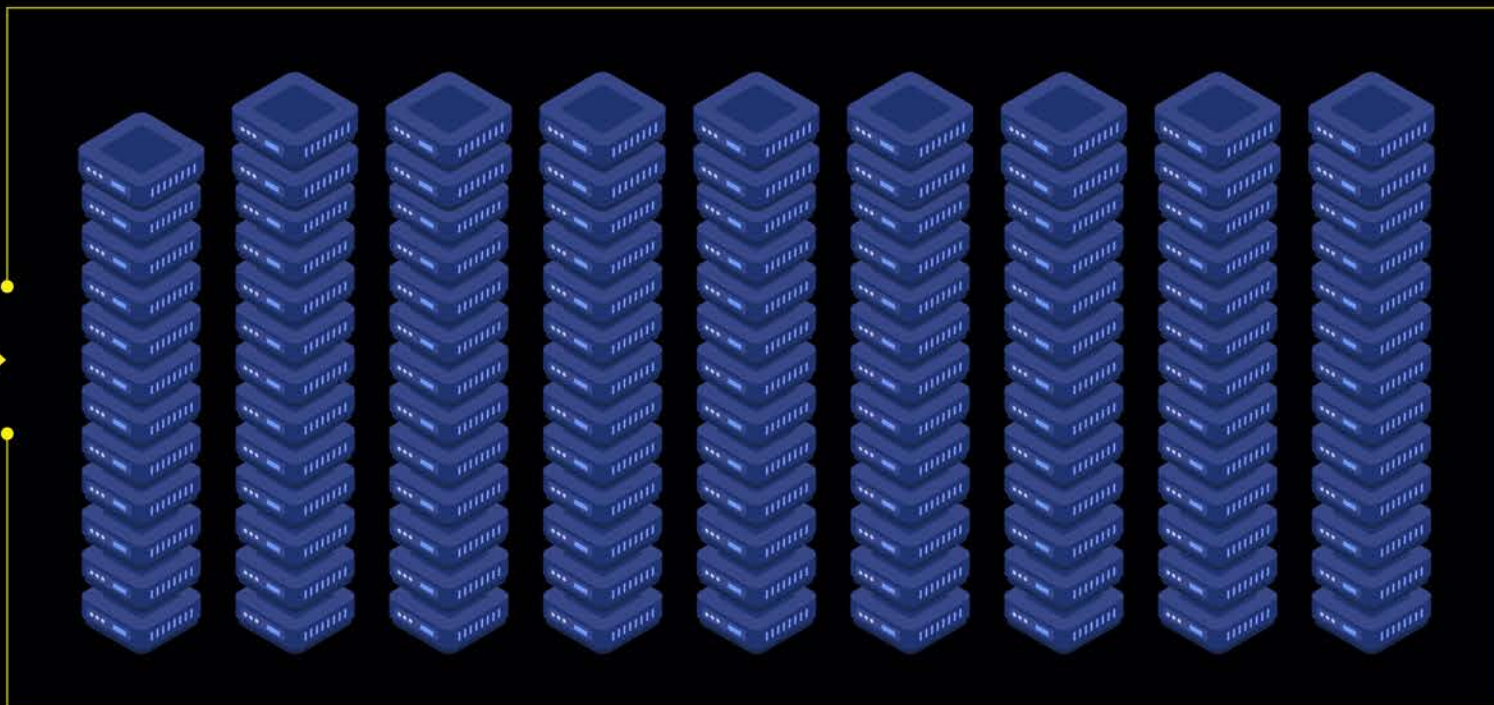


20,000

Terabytes

Roman's data archive

5 year primary mission  
(projected)



# PARTNERS IN EXPLORATION

GAMMA

X-RAY

ULTRAVIOLET

VISIBLE

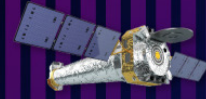
INFRARED

MICROWAVE

RADIO



FERMI



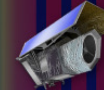
CHANDRA



HUBBLE



ROMAN



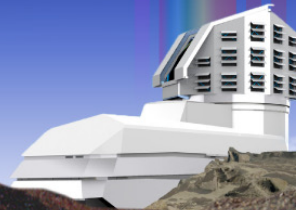
EUCLID



WEBB



SOFIA



RUBIN and ELTs

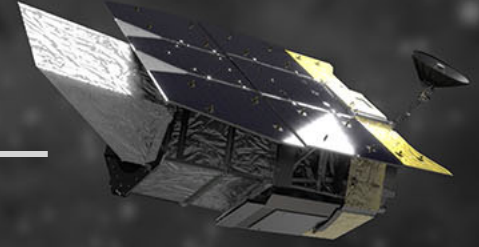
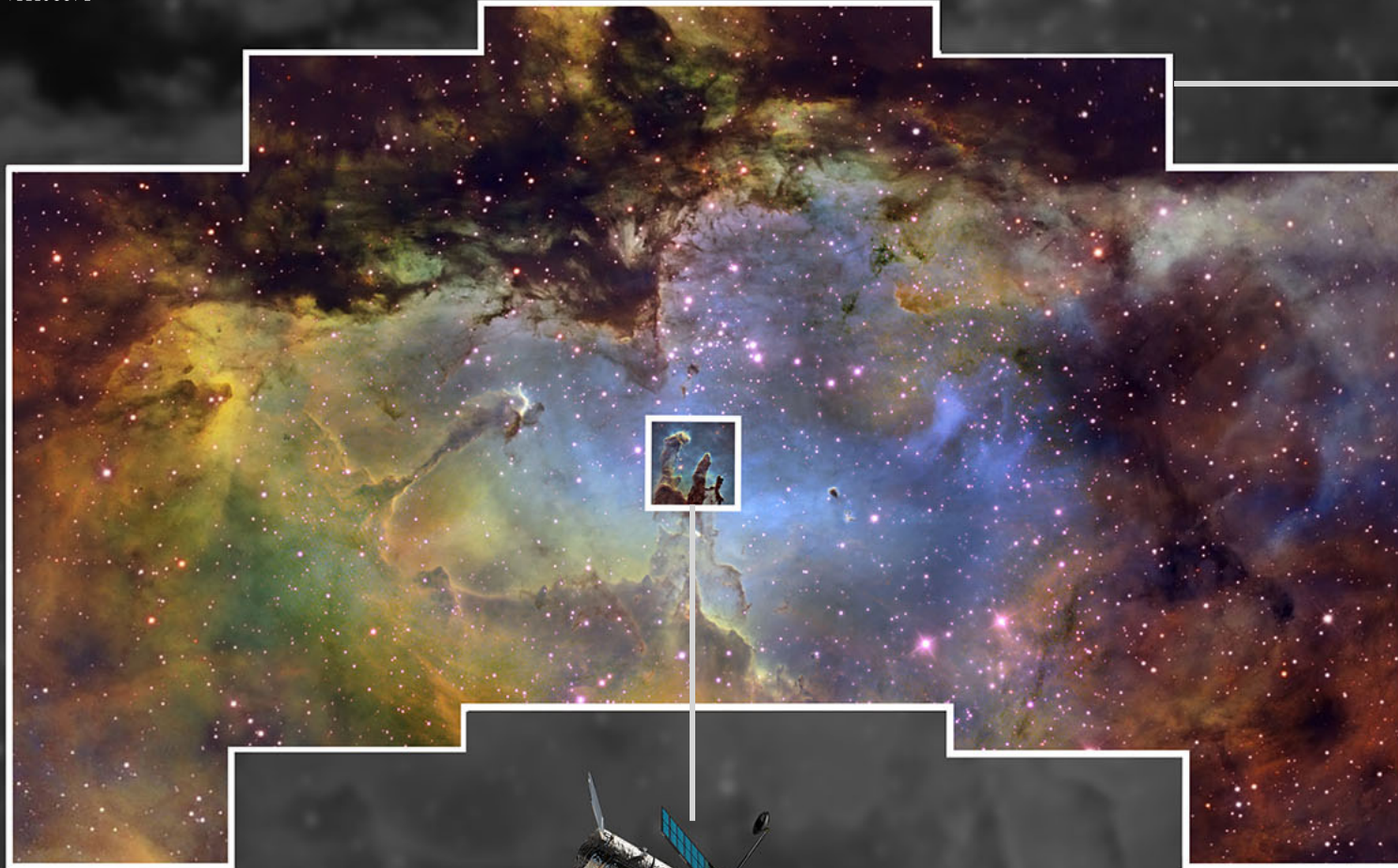


ALMA



SKA

ATMOSPHERE



## The Bigger Picture with the Roman Space Telescope

- Planets by the thousands
- Stars by the billions
- Galaxies by the millions
- Fundamental Physics
- The Unexpected

