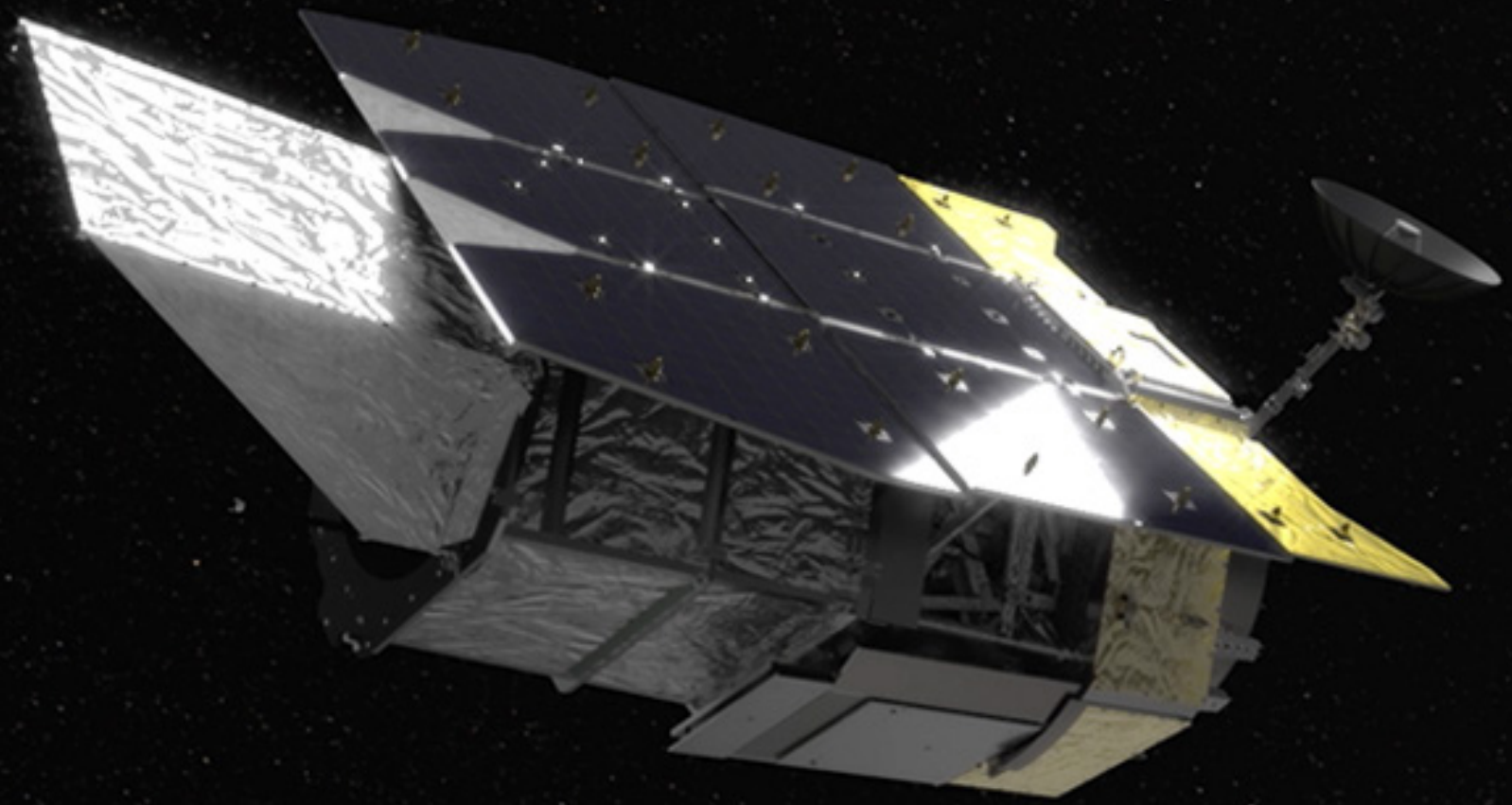
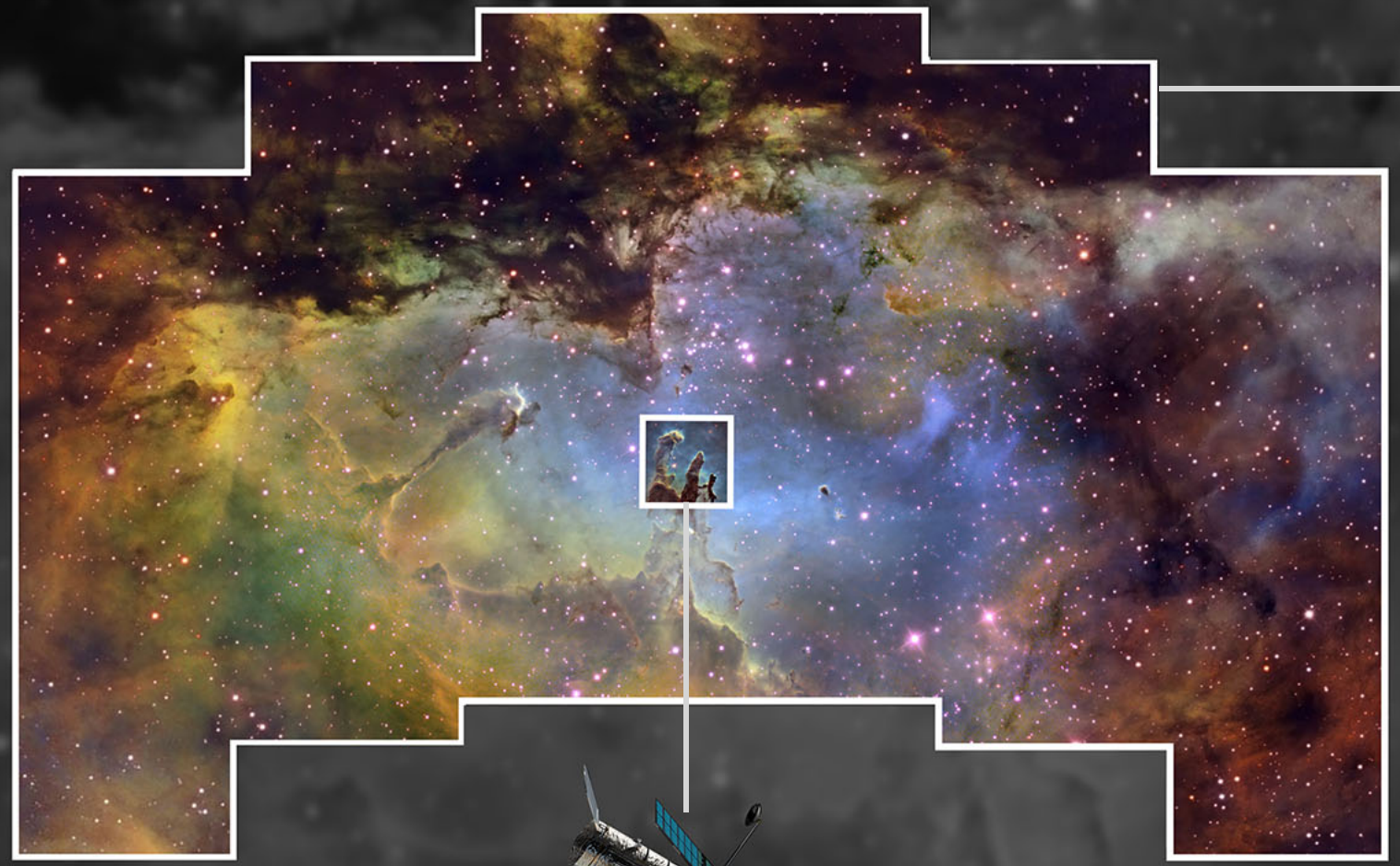
NANCY GRACE

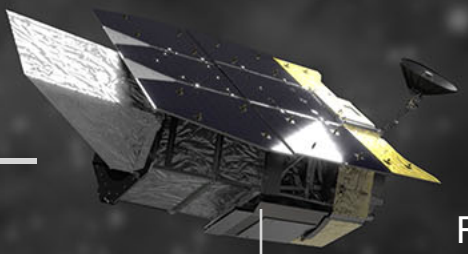
ROMAN

SPACE TELESCOPE



EXPANDING OUR VIEW





ROMAN

HUBBLE

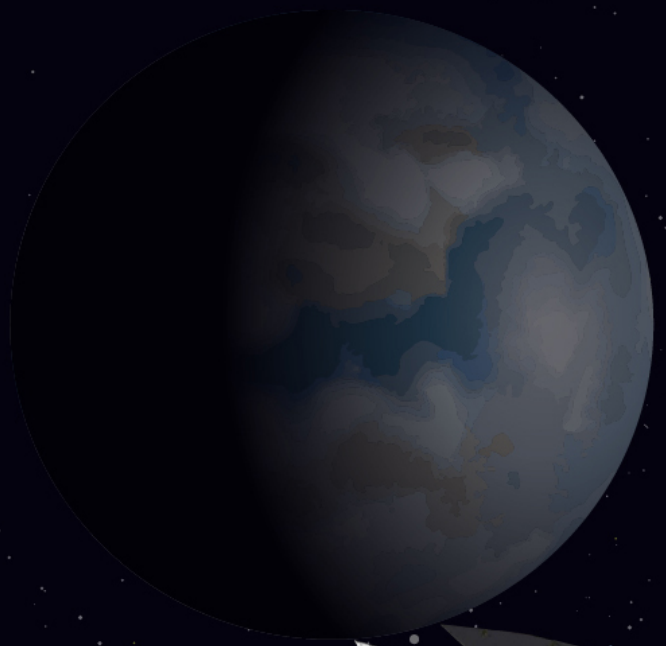
The Bigger Picture

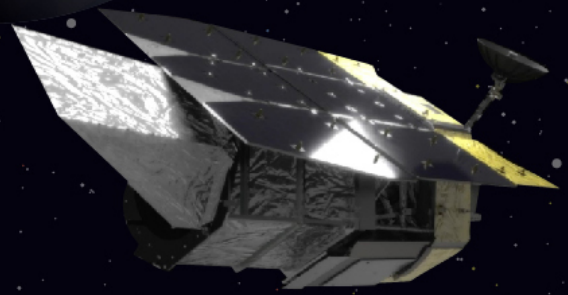
100x FIELD OF VIEW OF HUBBLE

Nancy Grace Roman

NASA’s First Chief of Astronomy

1925–2018





1990
HUBBLE

1999
CHANDRA

2003
SPITZER

2021
WEBB

mid-2020s
ROMAN

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

-Nancy Grace Roman

U.S. Astrophysics Planning

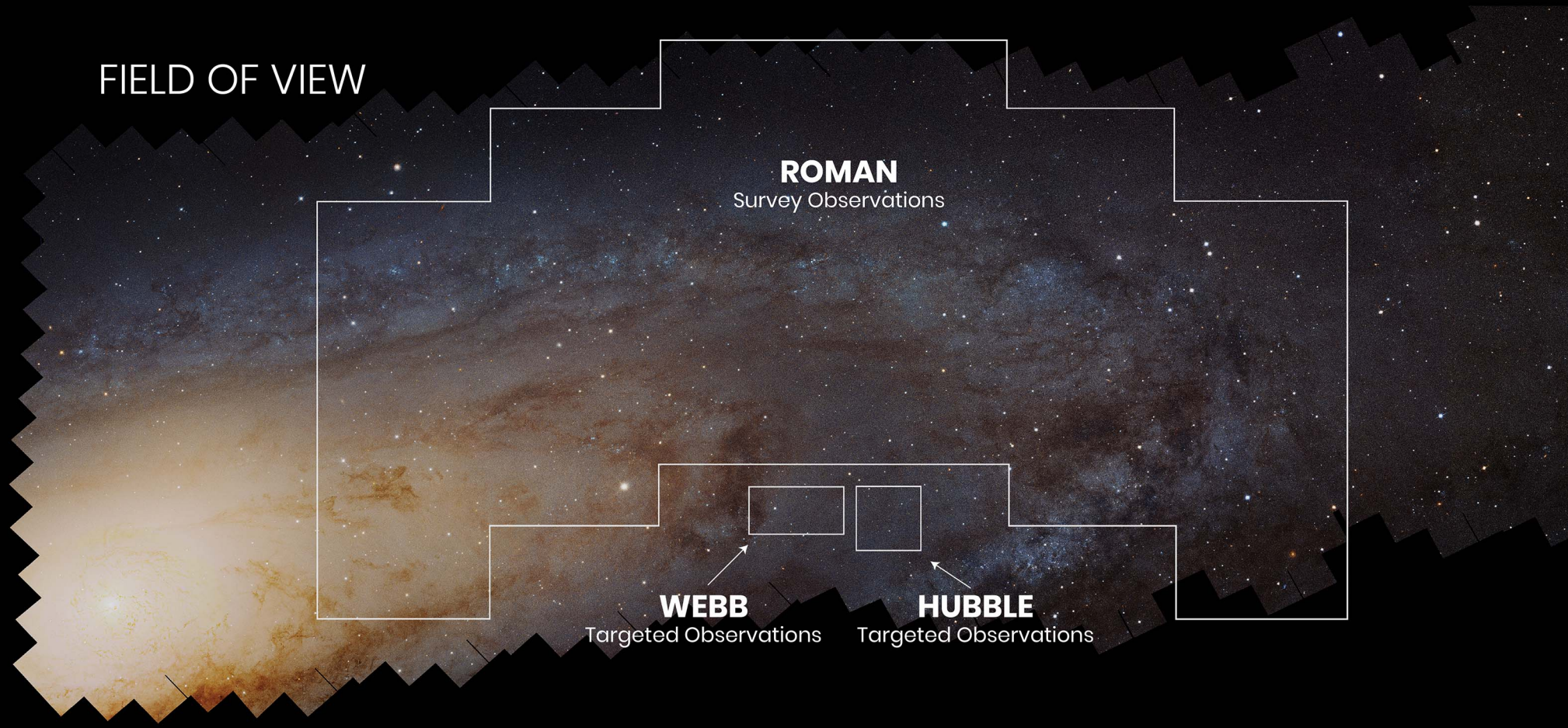
MIRRORS

HUBBLE

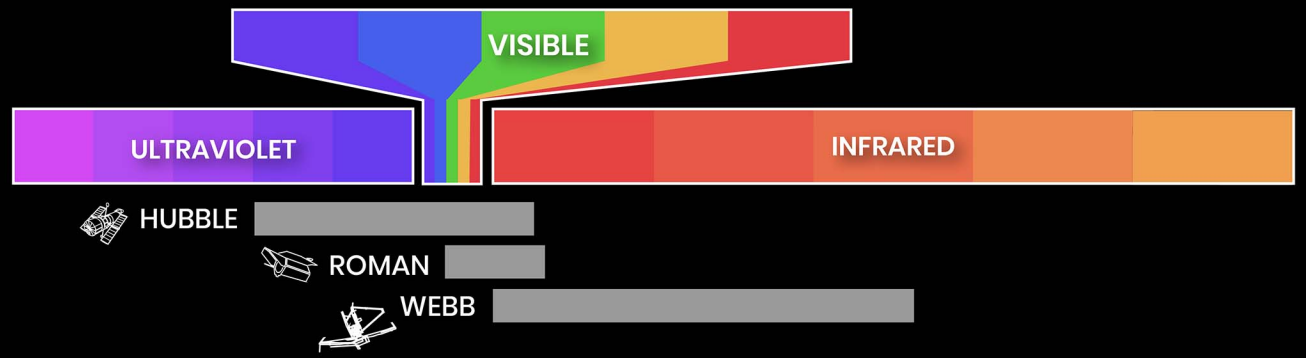
ROMAN

WEBB

FIELD OF VIEW

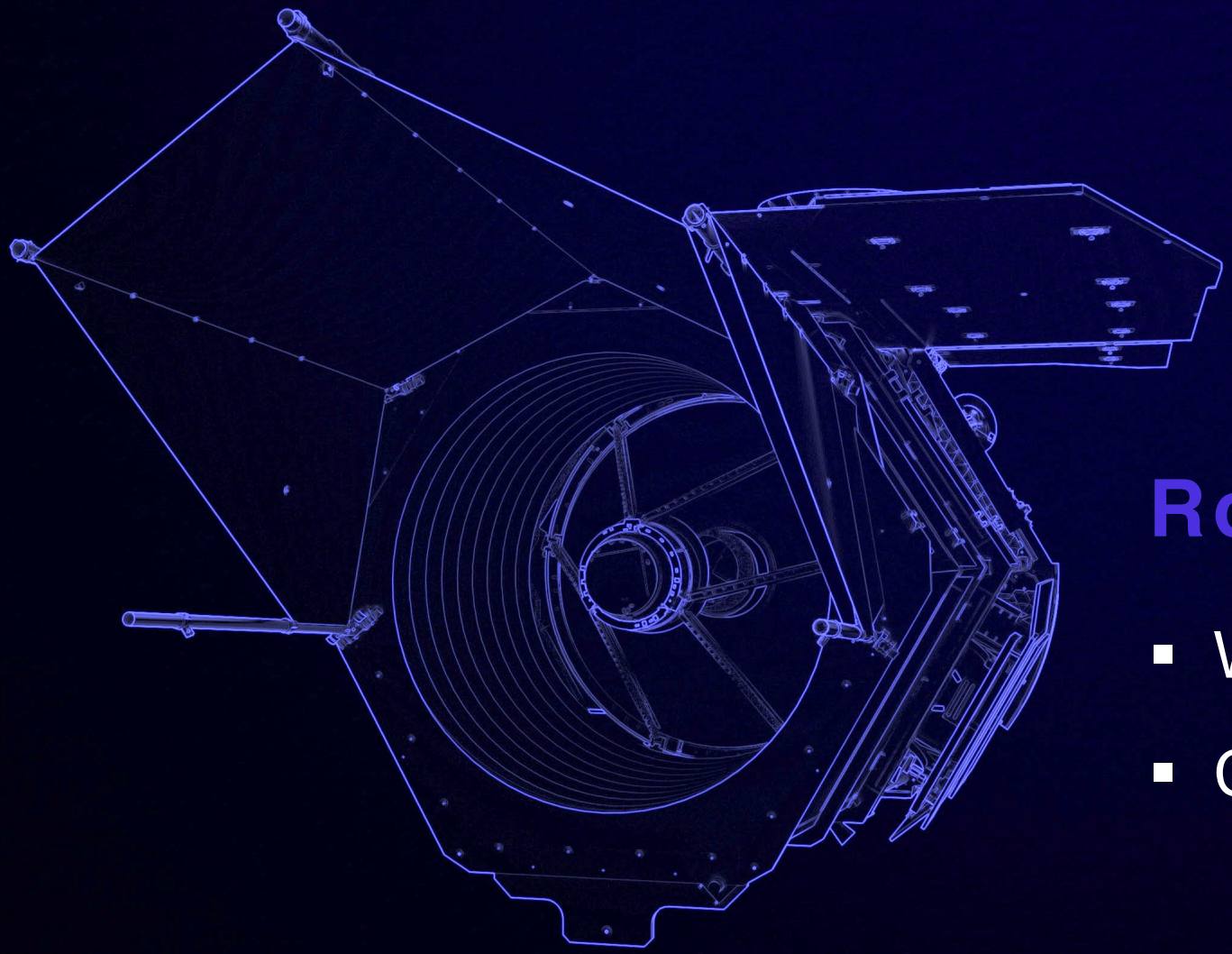


WAVELENGTH



Roman Facts & Figures

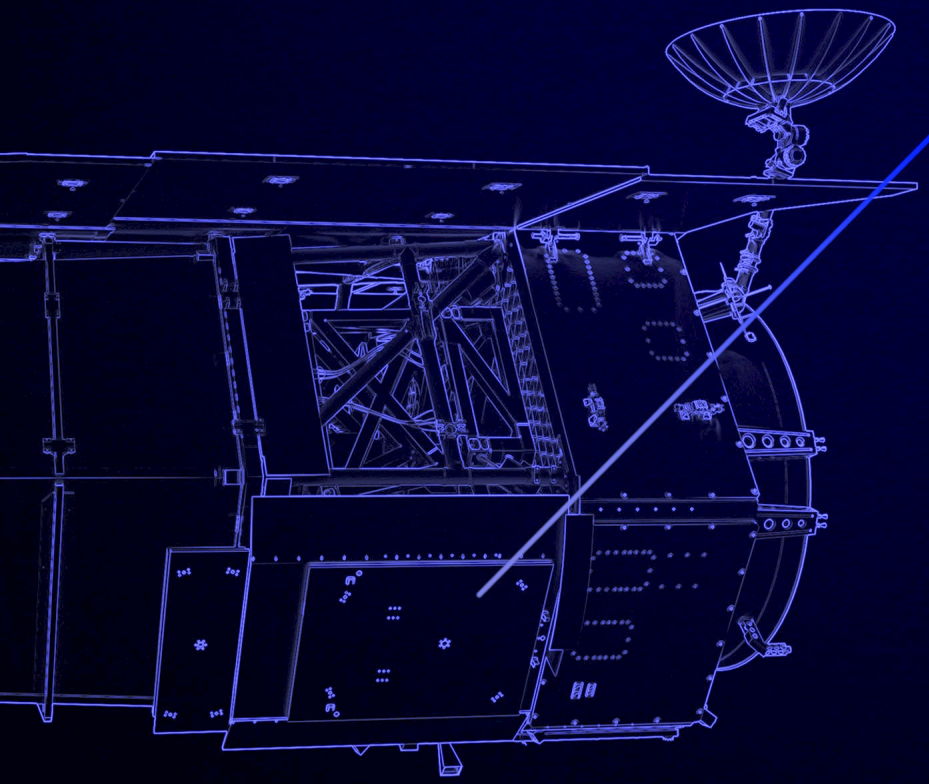
- Mid-2020s launch
- 300-megapixel camera
- 1 advanced coronagraph
- 5-year minimum mission
- 930,000 miles (1.5 million km) from Earth
- 410 lbs (186 kilograms) primary mirror



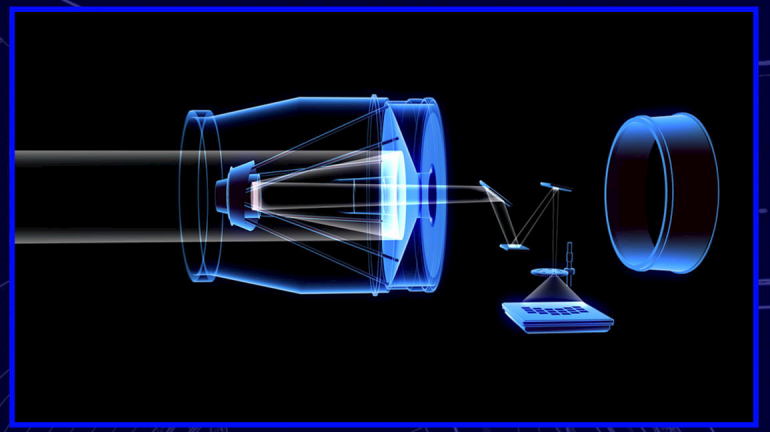
Roman Instruments

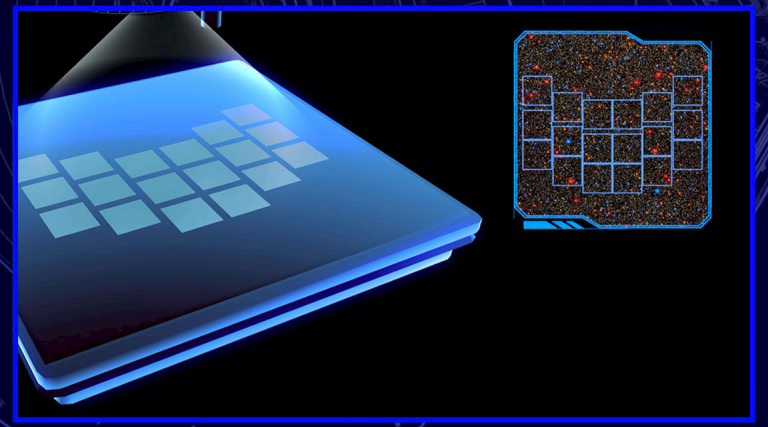
- Wide Field Instrument
- Coronagraph Instrument

WIDE FIELD INSTRUMENT

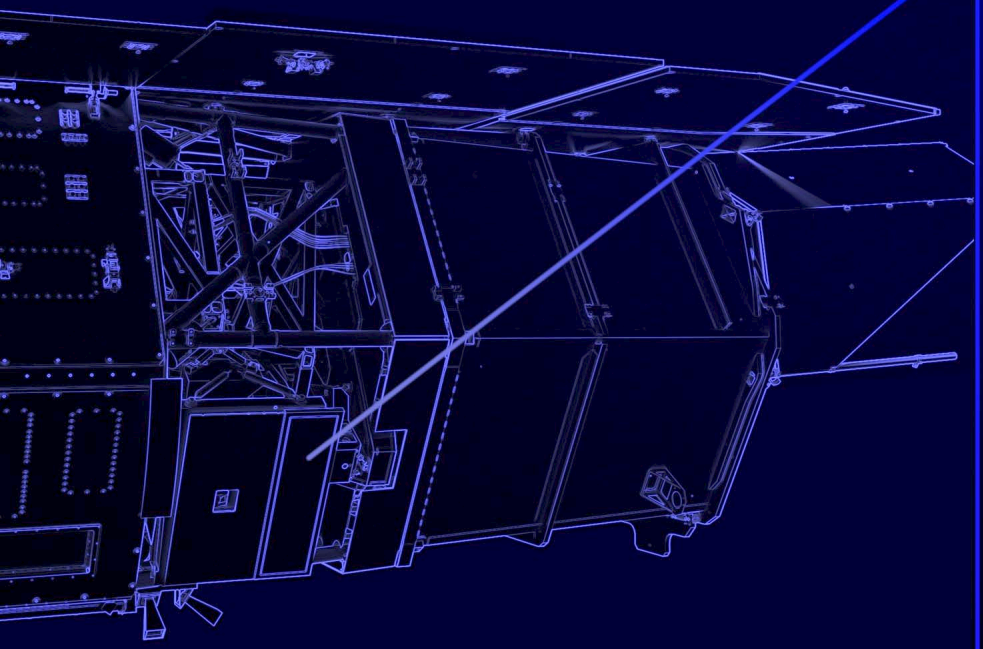


- Survey-style observations
- 18 near-infrared light detectors
- 300-megapixel camera
- 100x Hubble’s field of view
- 2 spectroscopic capabilities

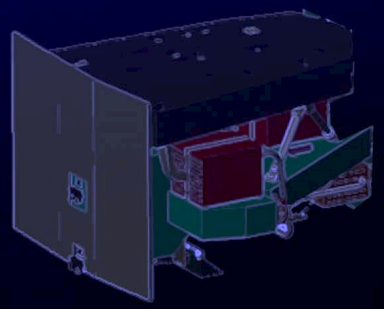


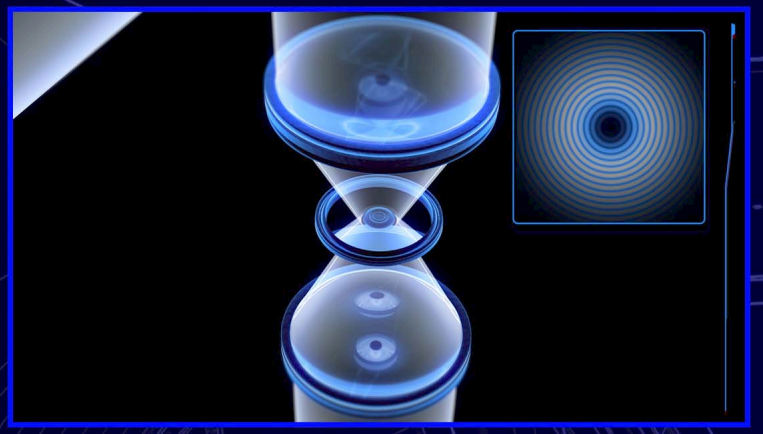


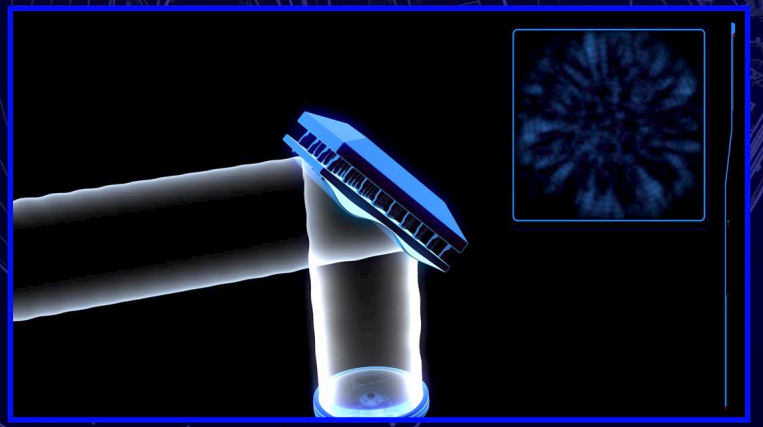
CORONAGRAPH INSTRUMENT



- 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

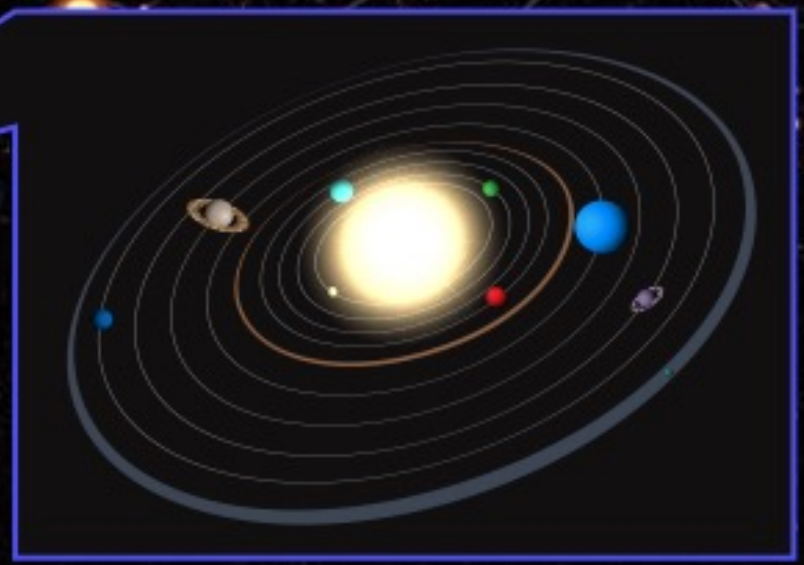
EXOPLANET DIVERSITY

Planets by the thousands

Stars by the billions

Galaxies by the millions

Fundamental physics

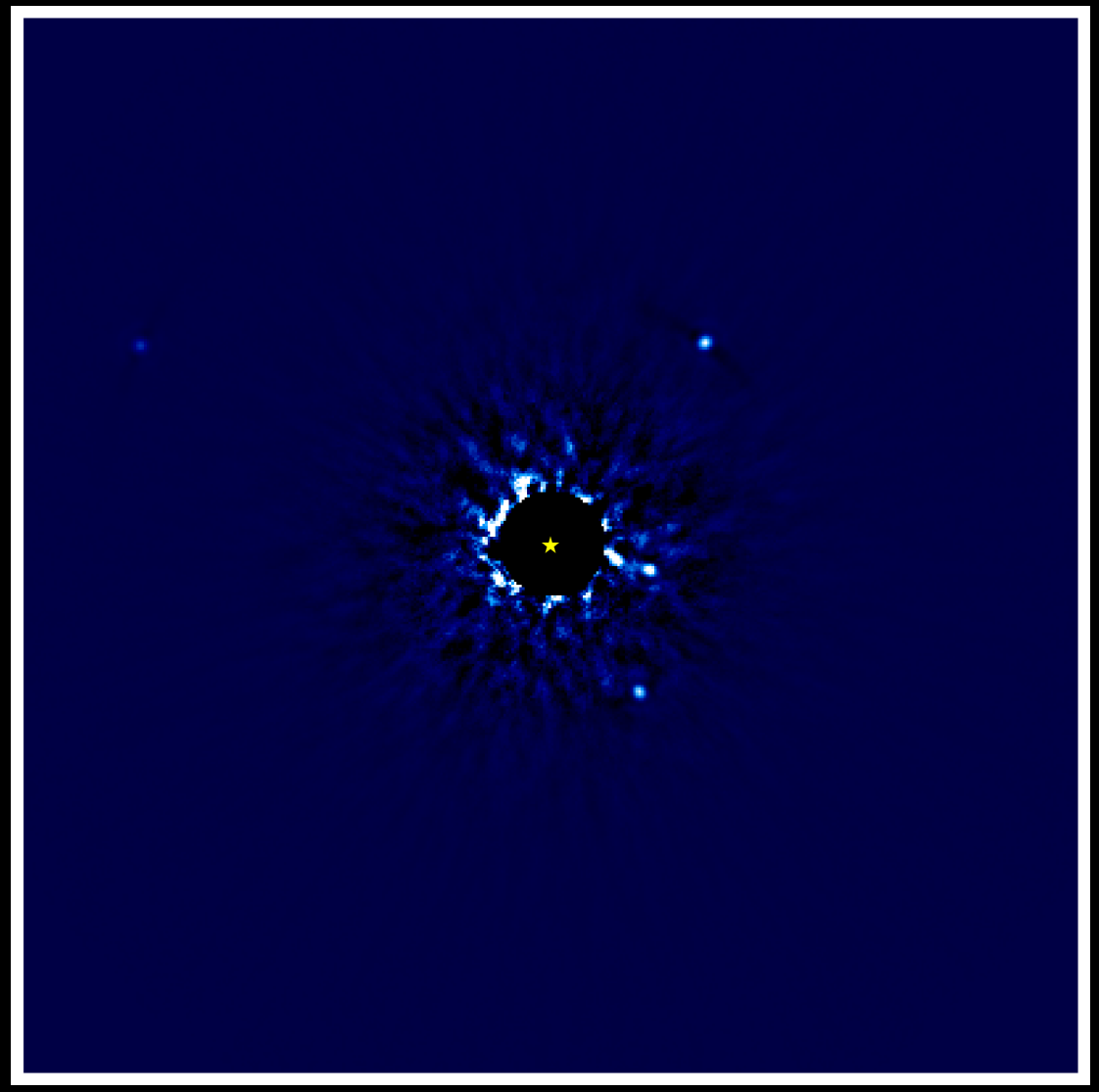


Planets by the thousands

Stars by the billions

Galaxies by the millions

Fundamental physics



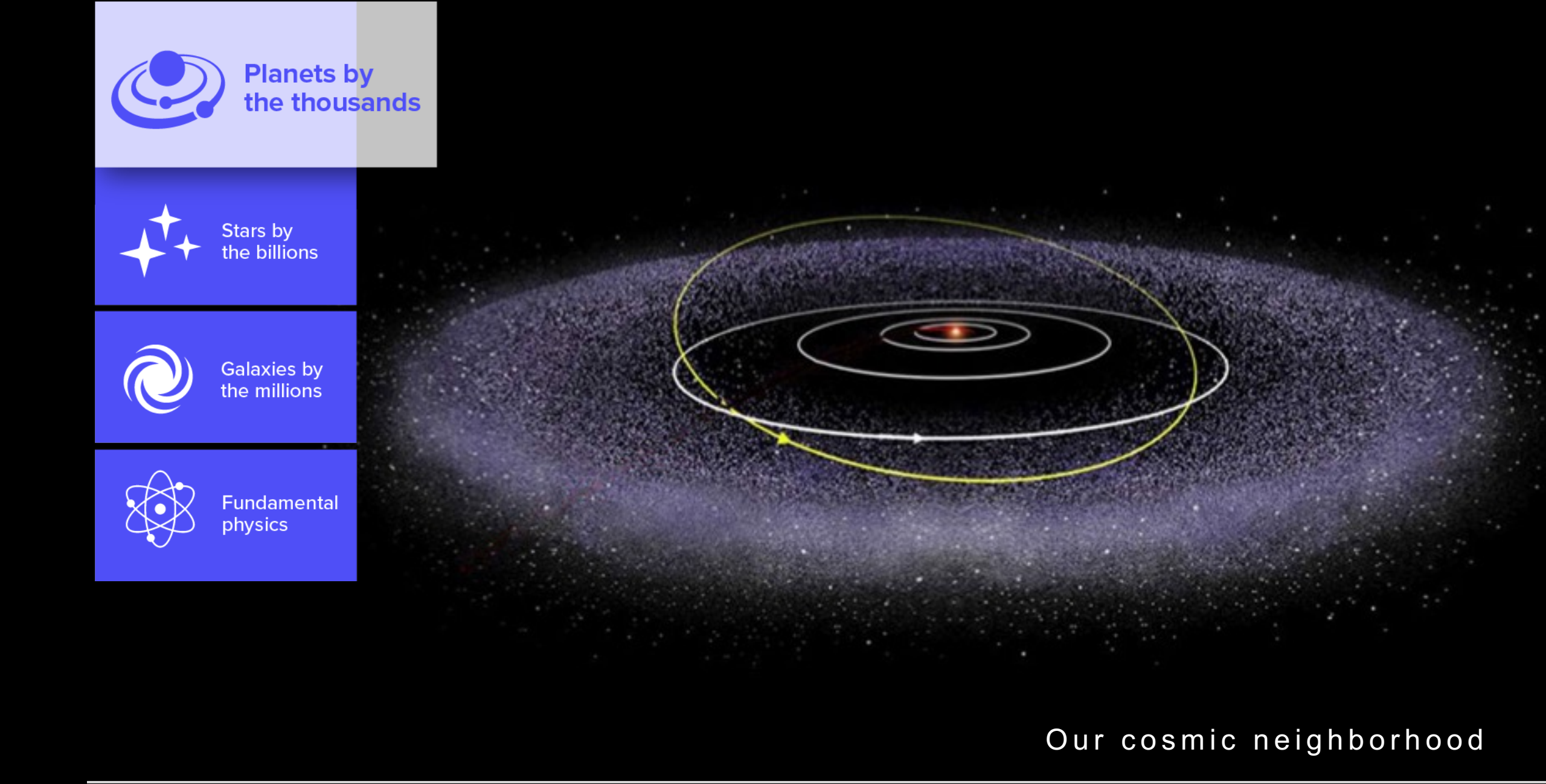
Advancing planet-detection technology

Planets by the thousands

Stars by the billions

Galaxies by the millions

Fundamental physics



Our cosmic neighborhood


Stars
by the billions

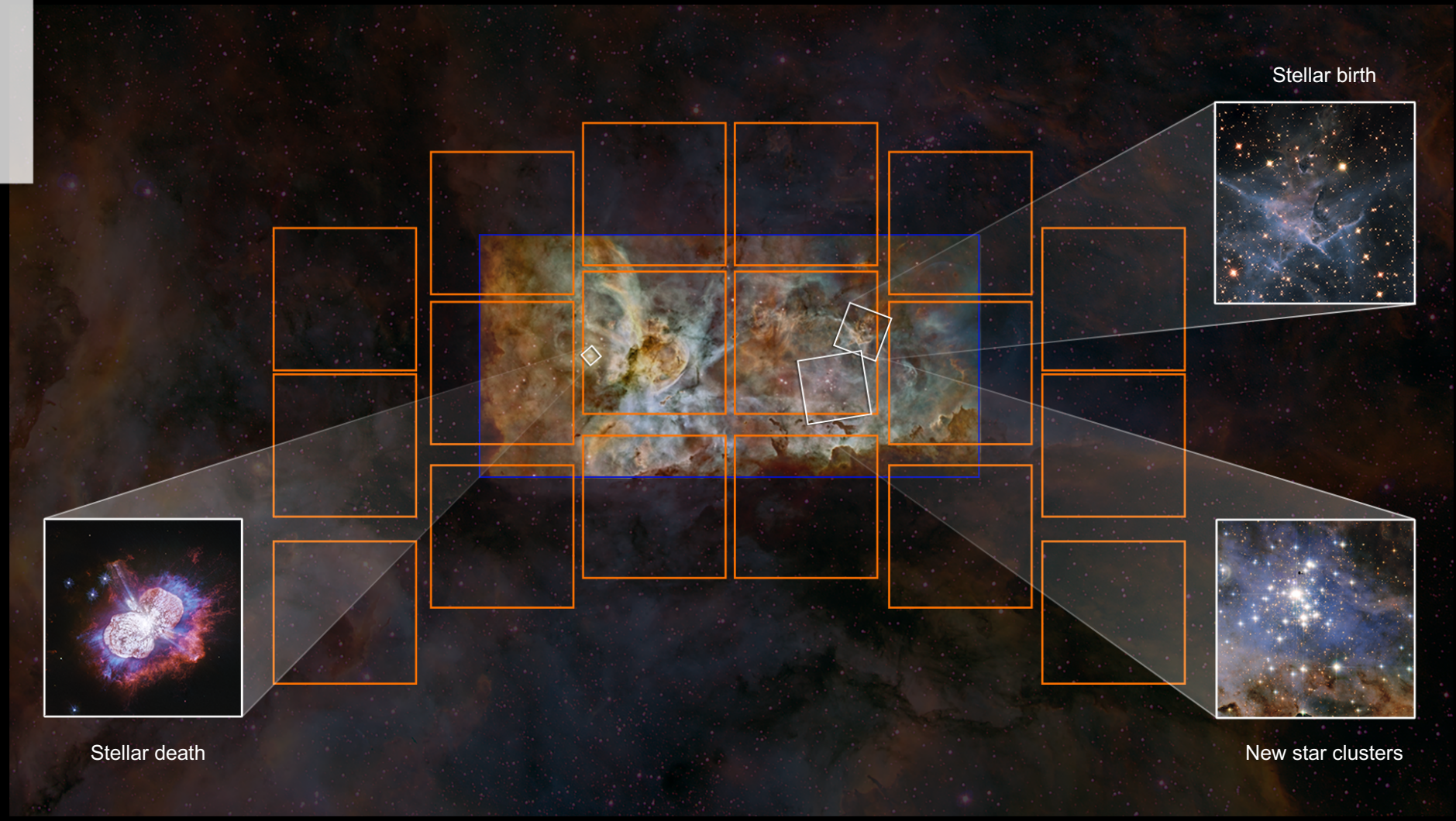
Planets by the thousands

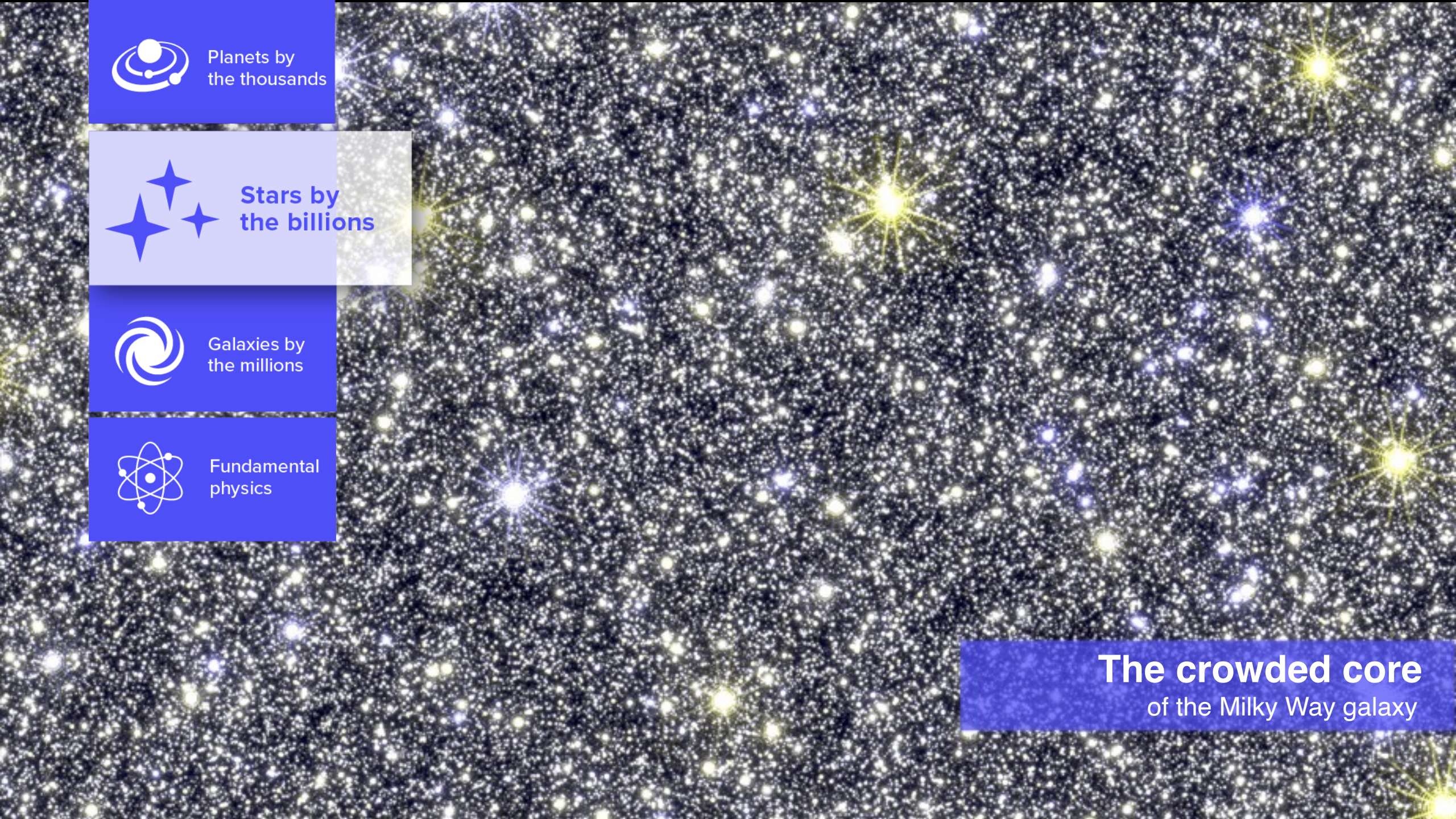
Stars by the billions

Galaxies by the millions

Fundamental physics

The Stellar Lifecycle in a Snapshot



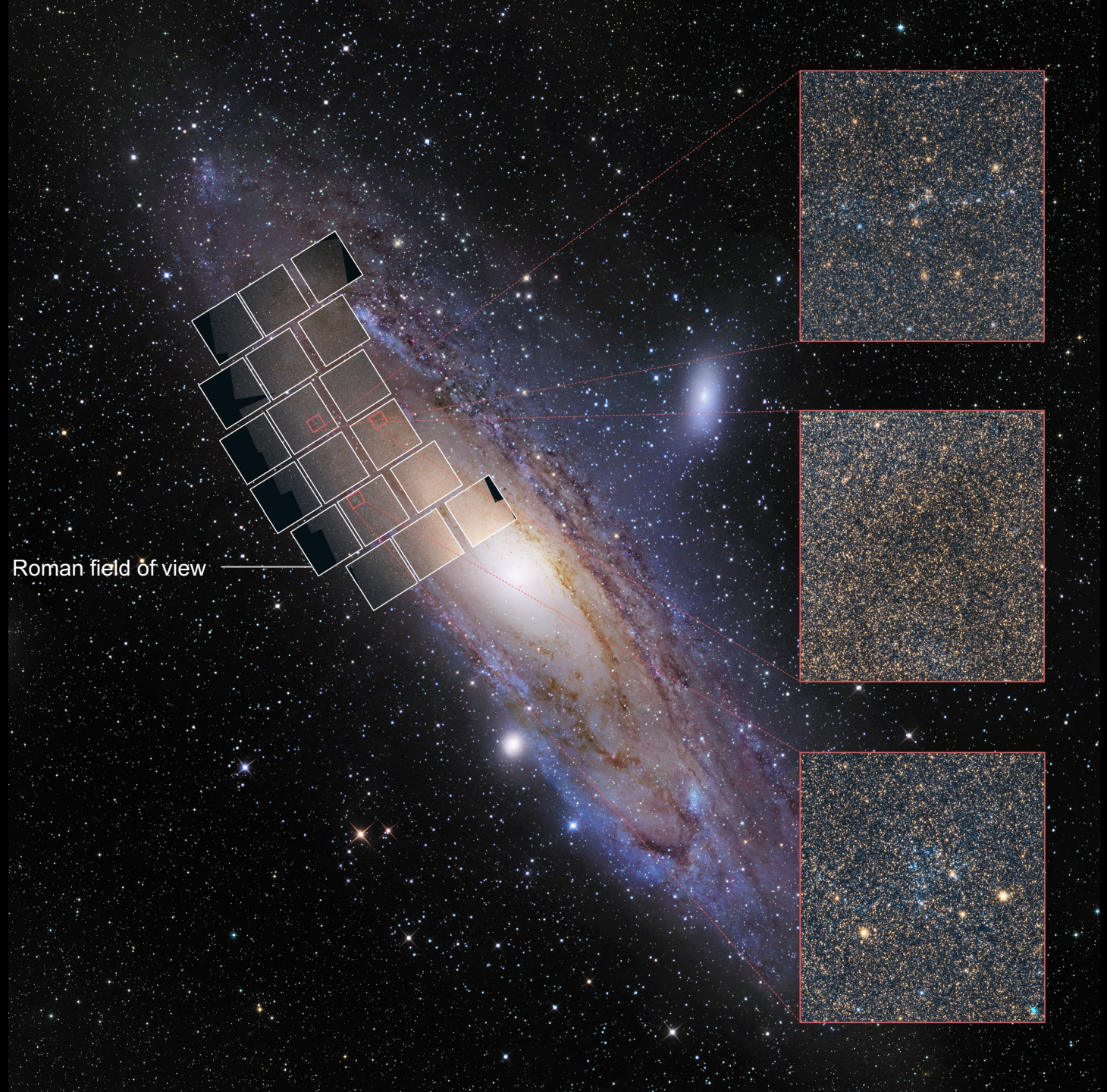

Planets by
the thousands
Stars by
the billions
Galaxies by
the millions
Fundamental
physics
The crowded core
of the Milky Way galaxy

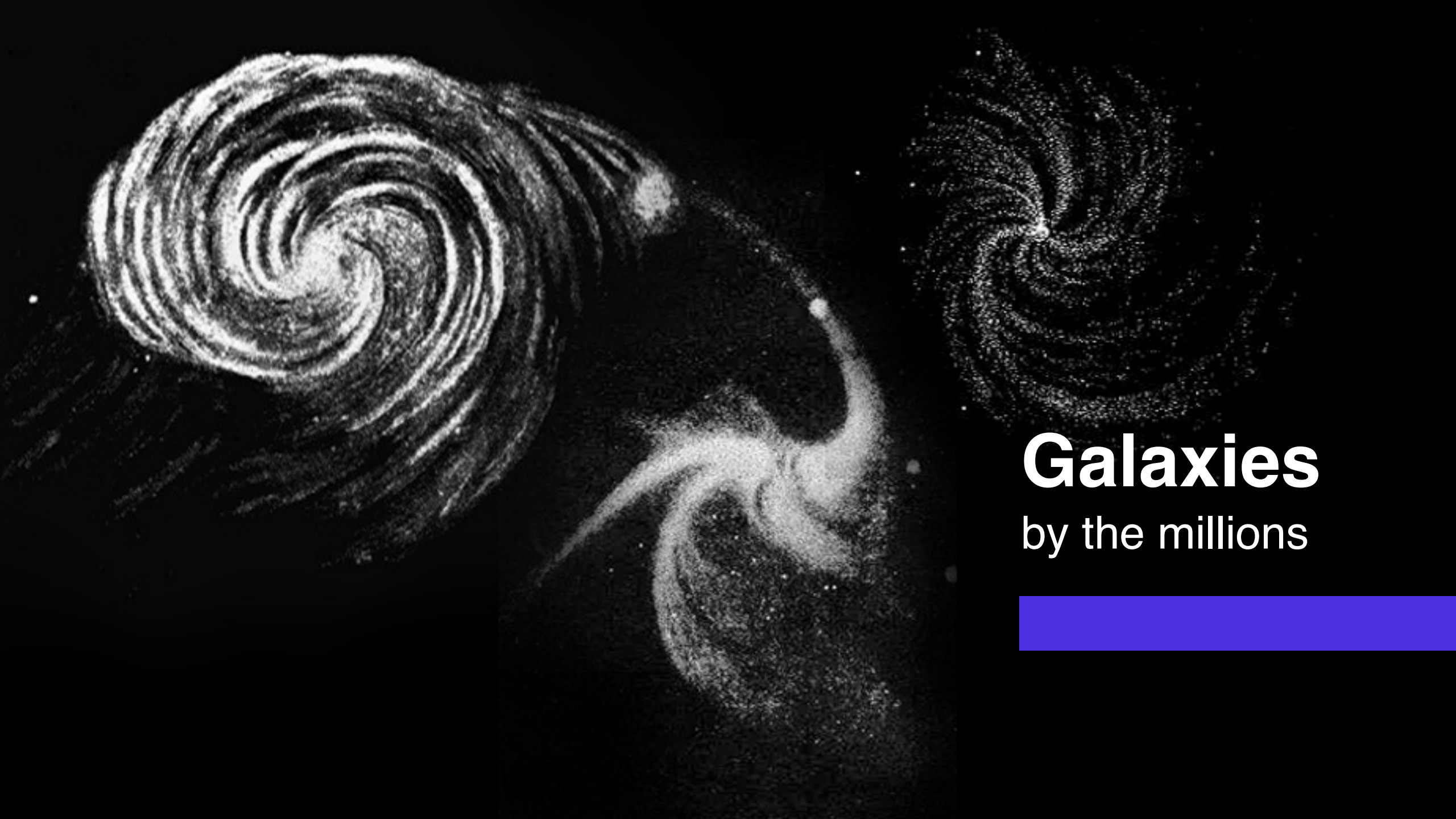
Planets by the thousands

Stars by the billions

Galaxies by the millions

Fundamental physics





Galaxies

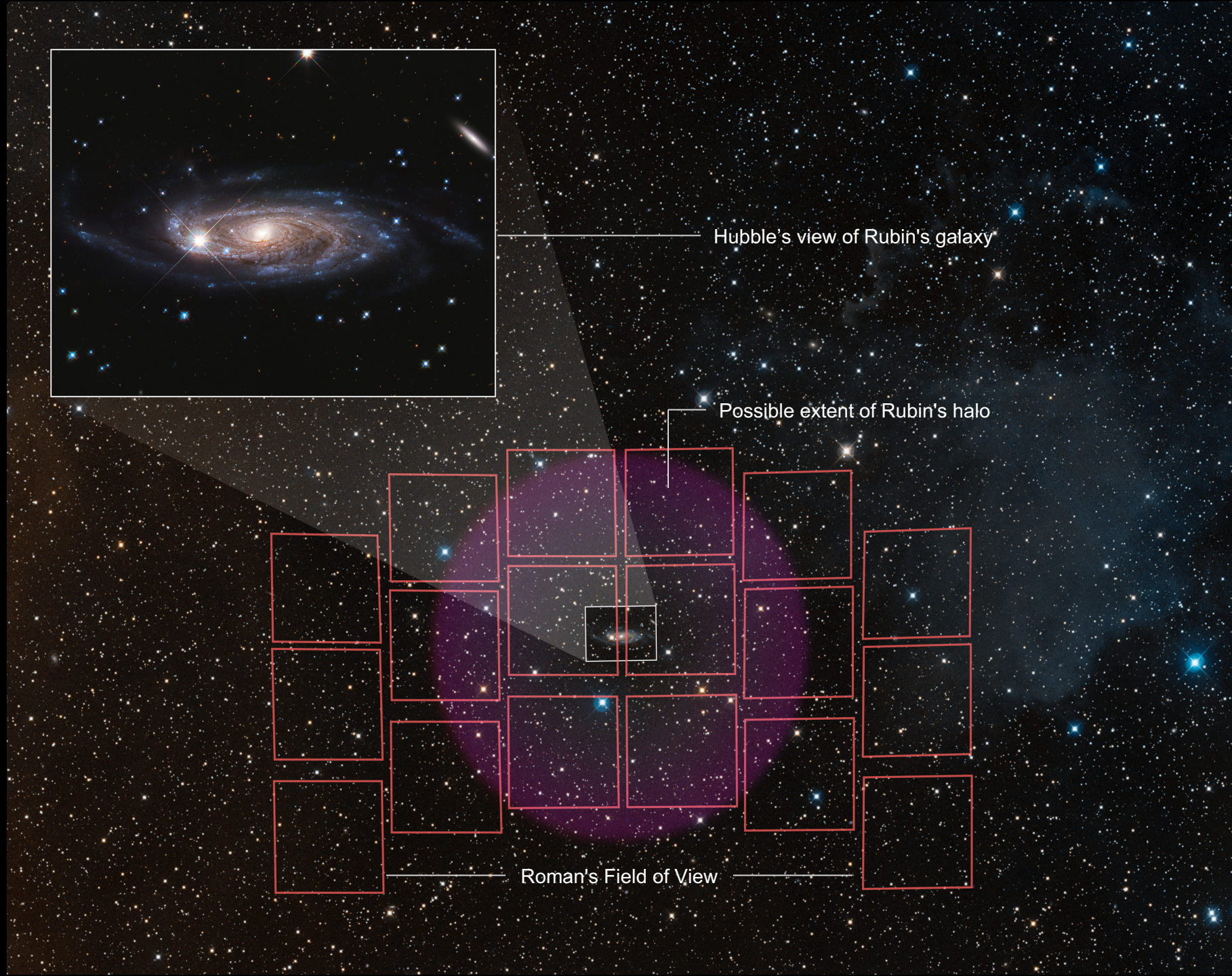
by the millions

Planets by the thousands

Stars by the billions

Galaxies by the millions

Fundamental physics



The Local Universe

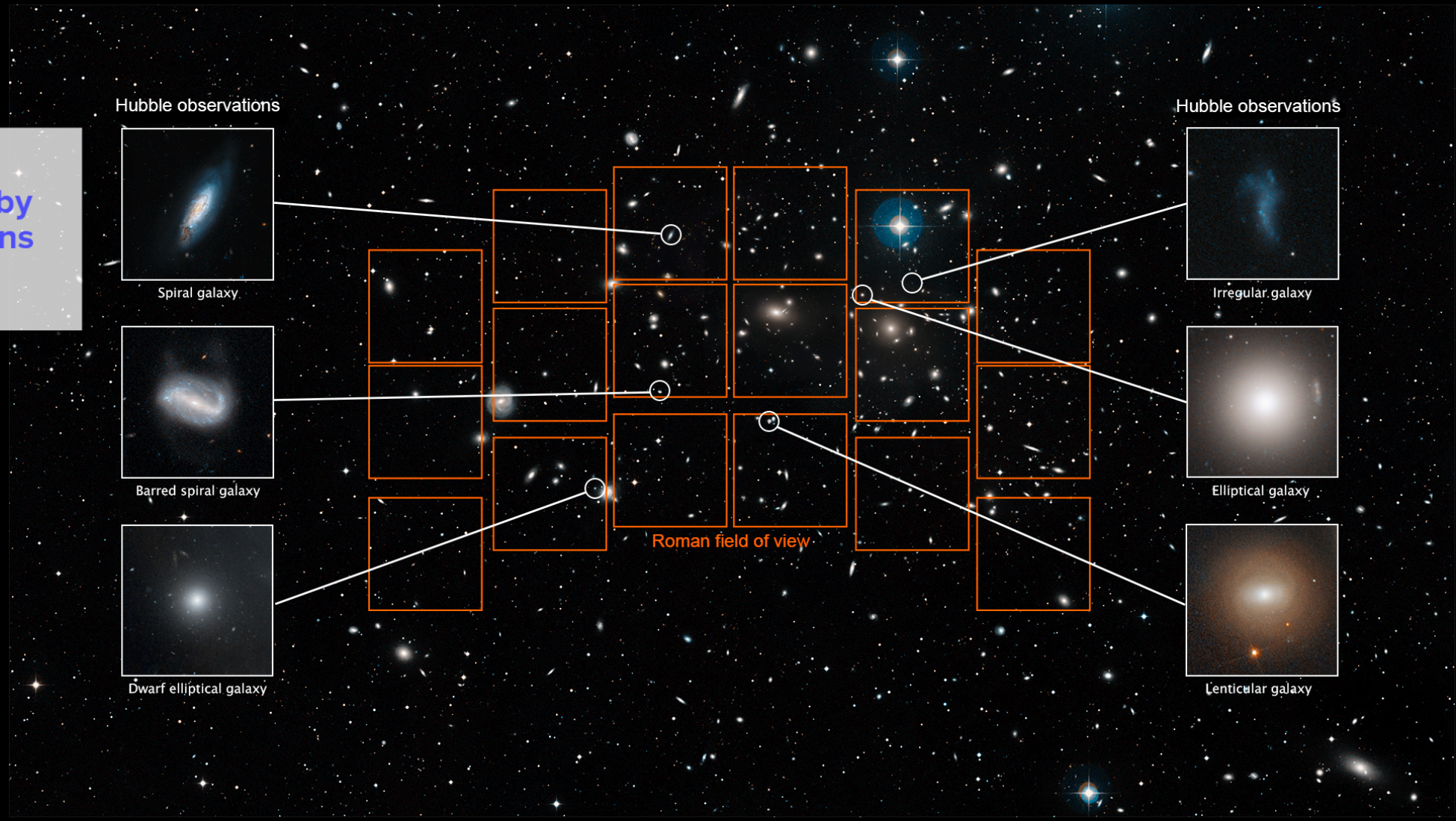
Planets by the thousands

Stars by the billions

Galaxies by the millions

Fundamental physics

Galactic Diversity



The Early Universe

Planets by the thousands

Stars by the billions

Galaxies by the millions

Fundamental physics

Fundamental Physics

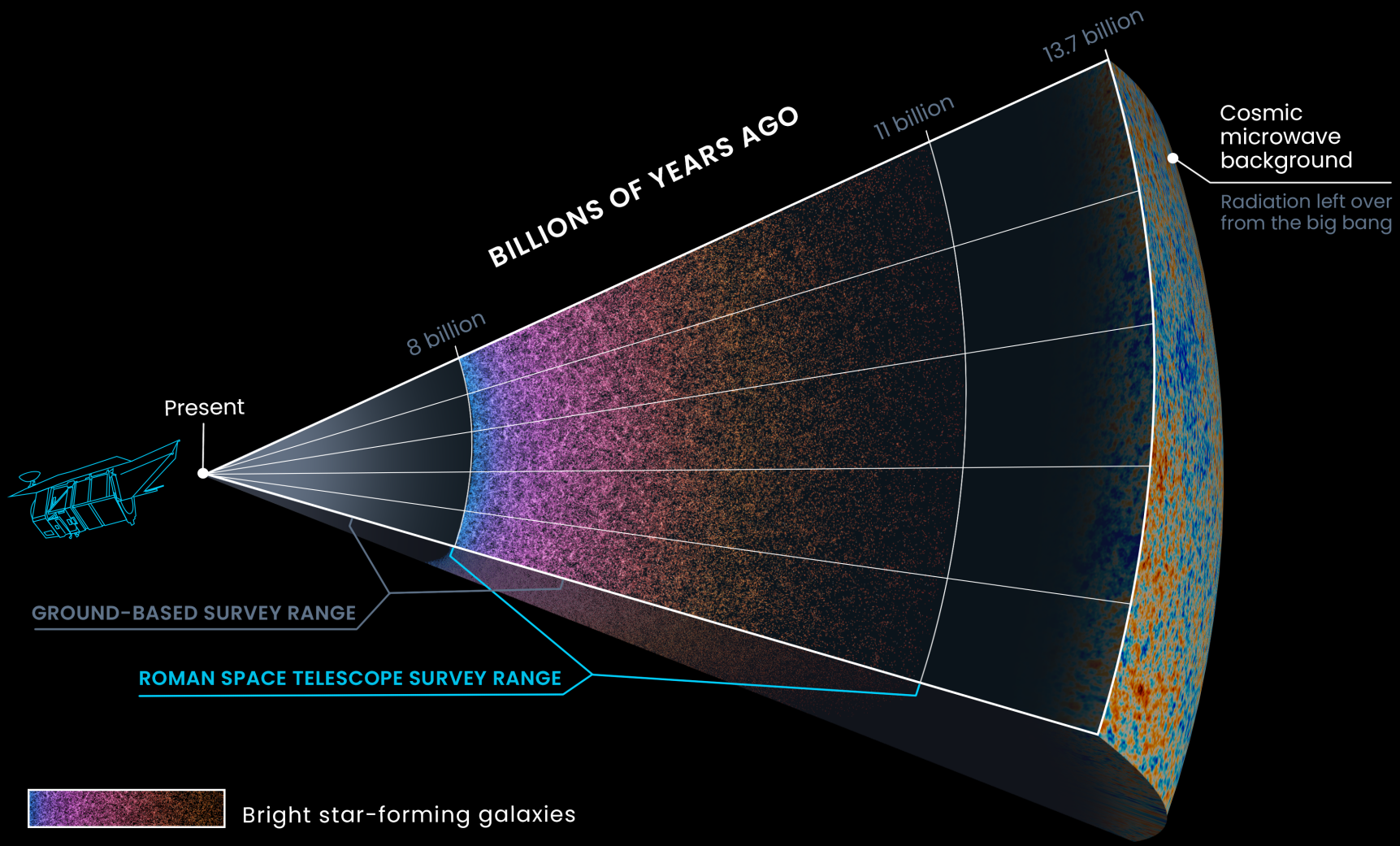
Planets by the thousands

Stars by the billions

Galaxies by the millions

Fundamental physics

Structure of the Universe



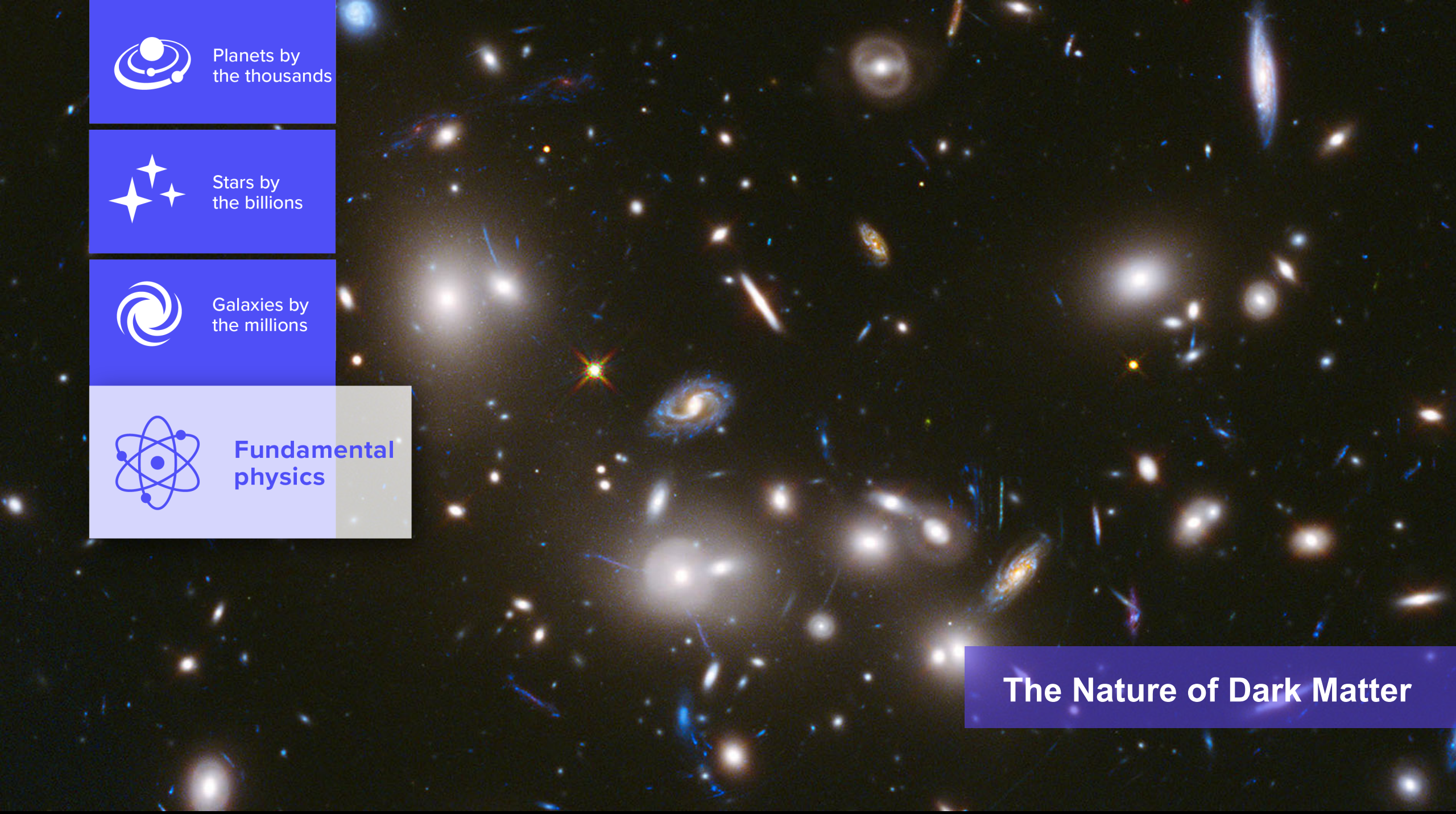
The Mystery of Dark Energy

Planets by the thousands

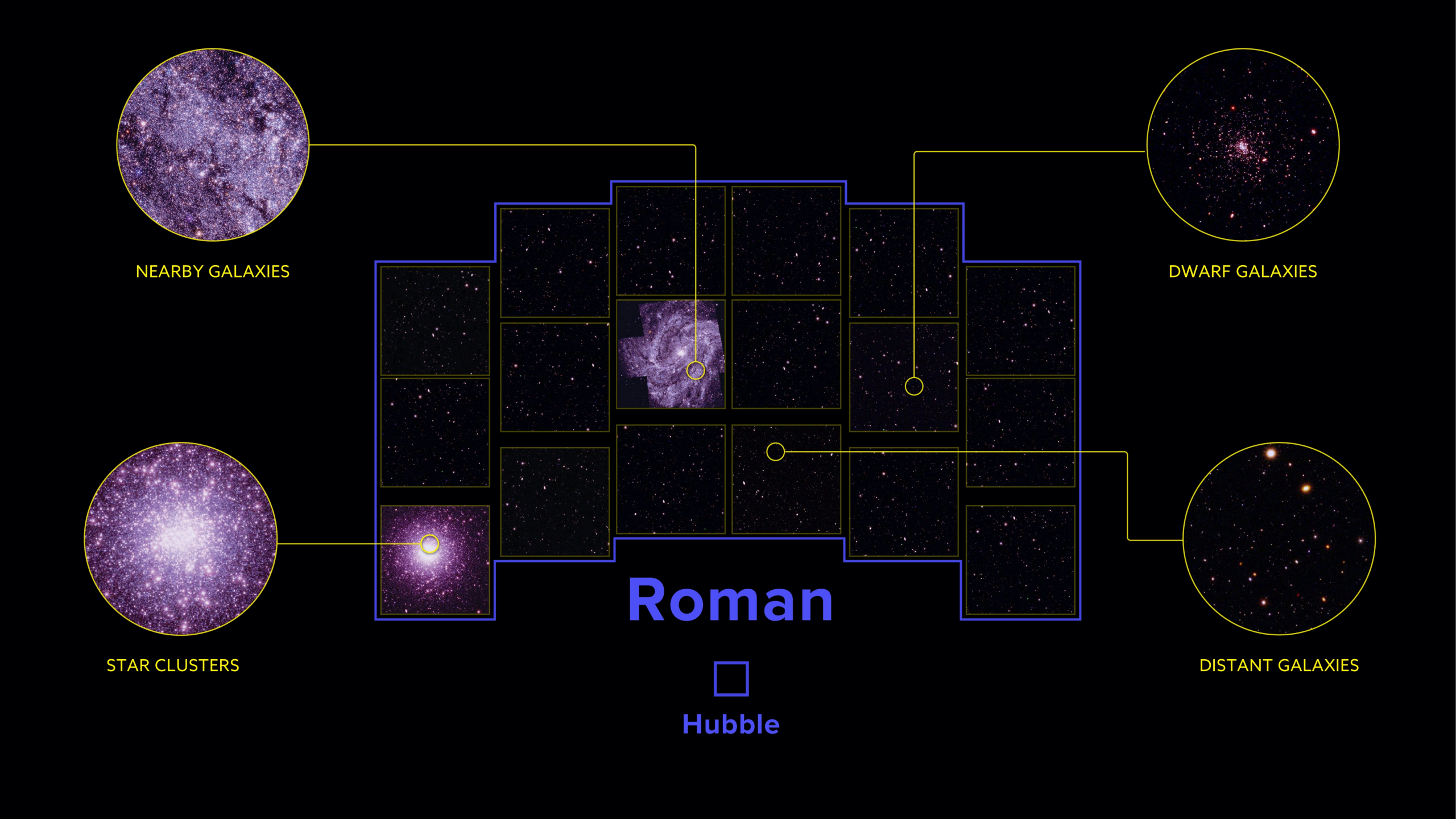
Stars by the billions

Galaxies by the millions

Fundamental physics


Planets by the thousands
Stars by the billions
Galaxies by the millions
Fundamental physics
The Nature of Dark Matter


New Physics
Expect the Unexpected


NEARBY GALAXIES
DWARF GALAXIES
STAR CLUSTERS
DISTANT GALAXIES
Roman
Hubble

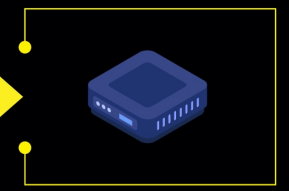
BIG DATA

172

Terabytes

Hubble’s data archive

30 years (1990–2020)

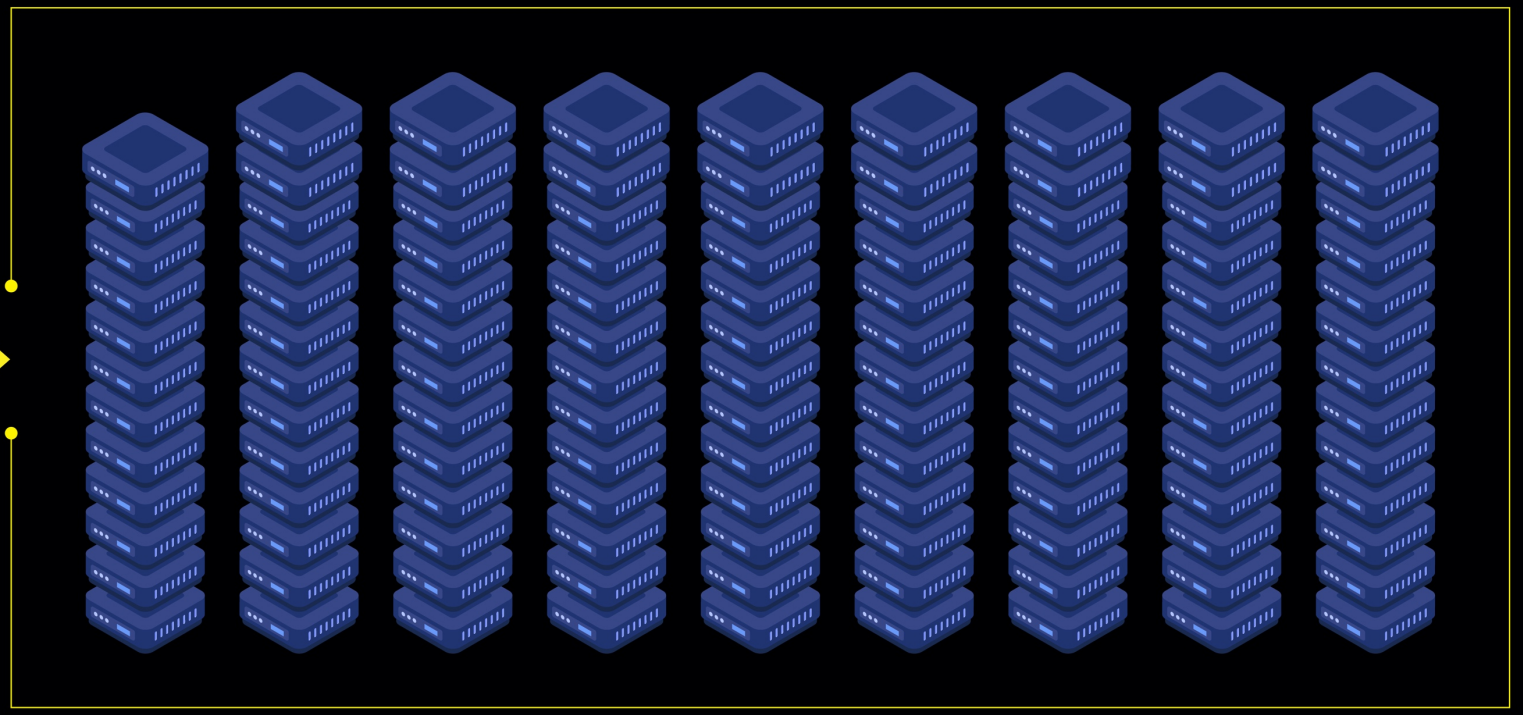


20,000

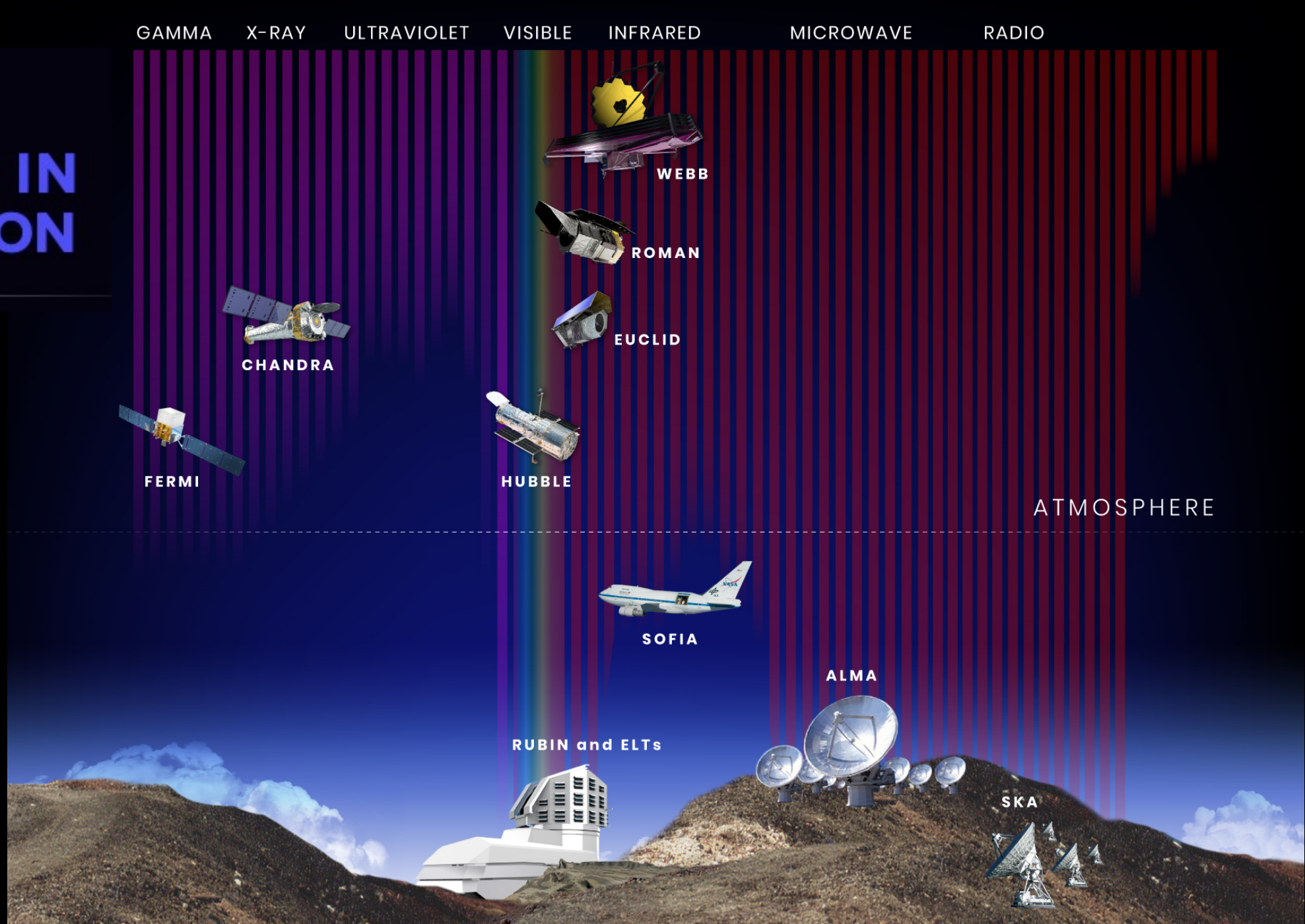
Terabytes

Roman’s data archive

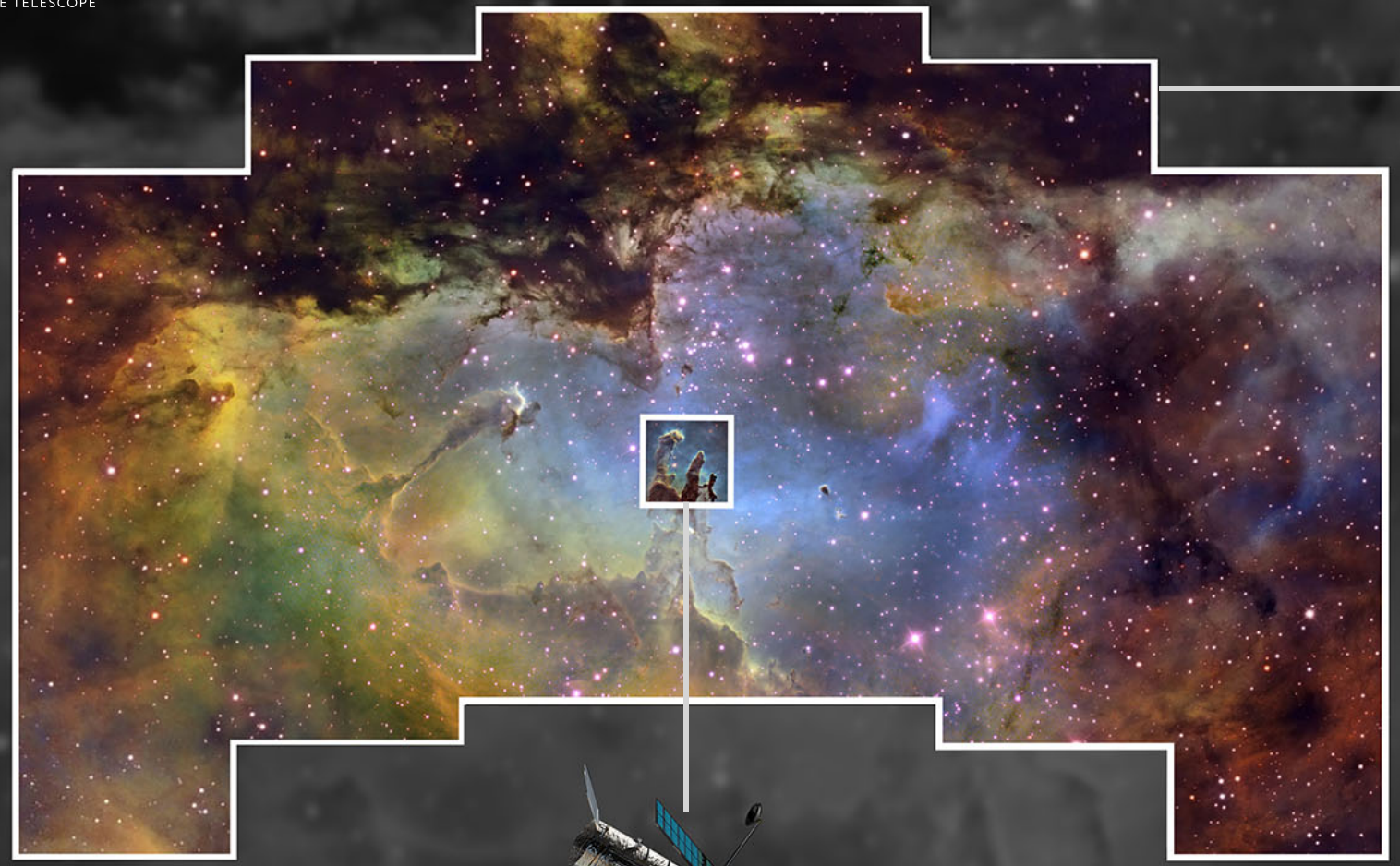
5 year primary mission
(projected)

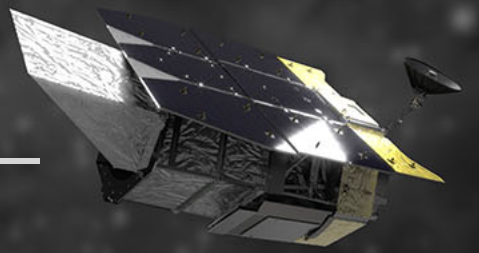


PARTNERS IN EXPLORATION



NANCY GRACE ROMAN SPACE TELESCOPE





The Bigger Picture

with the Roman Space Telescope

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