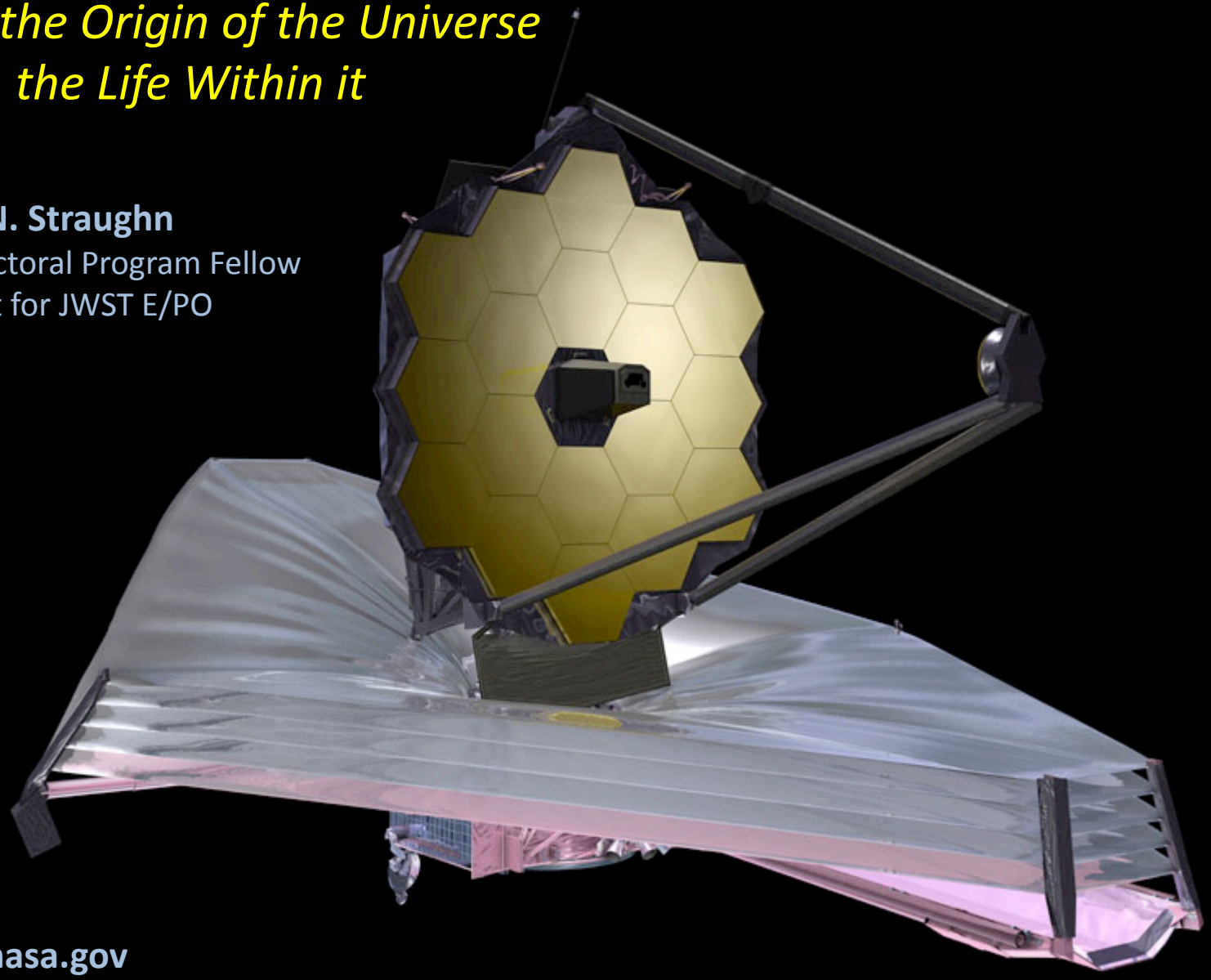
The James Webb Space Telescope:

Exploring the Origin of the Universe & the Life Within it

Dr. Amber N. Straughn
NASA Postdoctoral Program Fellow
Lead Scientist for JWST E/PO



www.jwst.nasa.gov

James Webb Space Telescope

- 6.6m Telescope
- Launch in 2014 to L2.
- Successor to Hubble & Spitzer.
- Demonstrator of deployed optics.
- 4 instruments: 0.6 to 28.5 µm
- Passively cooled to 50K.
- Named for 2nd NASA Administrator
- Complementary to ELT, ALMA, SKA, Con-X, etc.

- NASA + ESA + CSA: 15 countries
- Lead: Goddard Space Flight Center
- Prime: Northrop Grumman
- Operations: STScI
- Senior Project Scientist: Nobel Laureate John Mather

The End of the Dark Ages: First Light and Reionization

…. to identify the first bright objects that formed in the early Universe, and follow the ionization history.

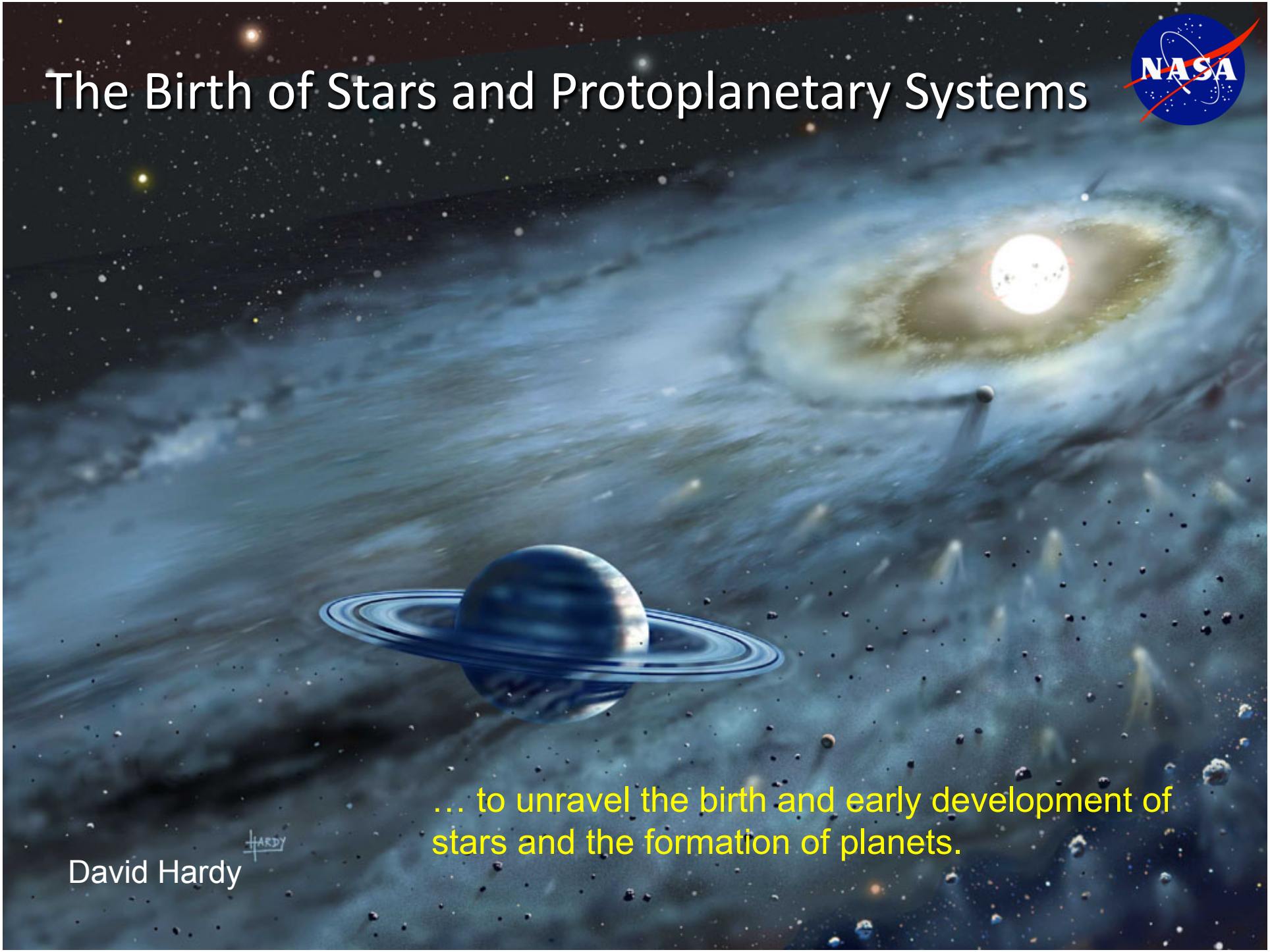
Hubble Ultra Deep Field

The Assembly of Galaxies

… to determine how galaxies and dark matter, including gas, stars, metals, physical structures (like spiral arms) and active nuclei evolved to the present day.

NGC 4676 (The Mice) by HST

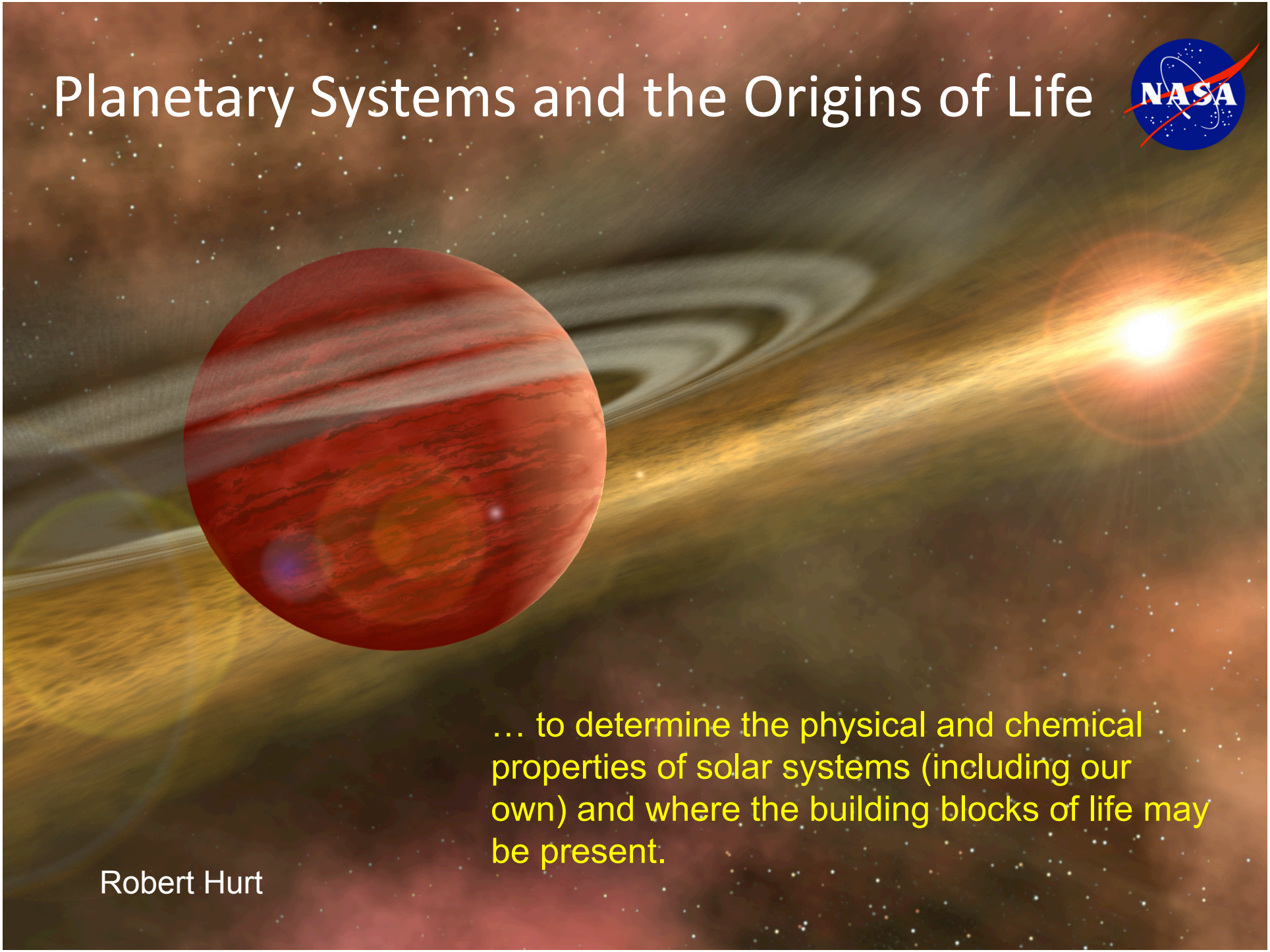
The Birth of Stars and Protoplanetary Systems



… to unravel the birth and early development of stars and the formation of planets.

David Hardy

Planetary Systems and the Origins of Life



… to determine the physical and chemical properties of solar systems (including our own) and where the building blocks of life may be present.

Robert Hurt