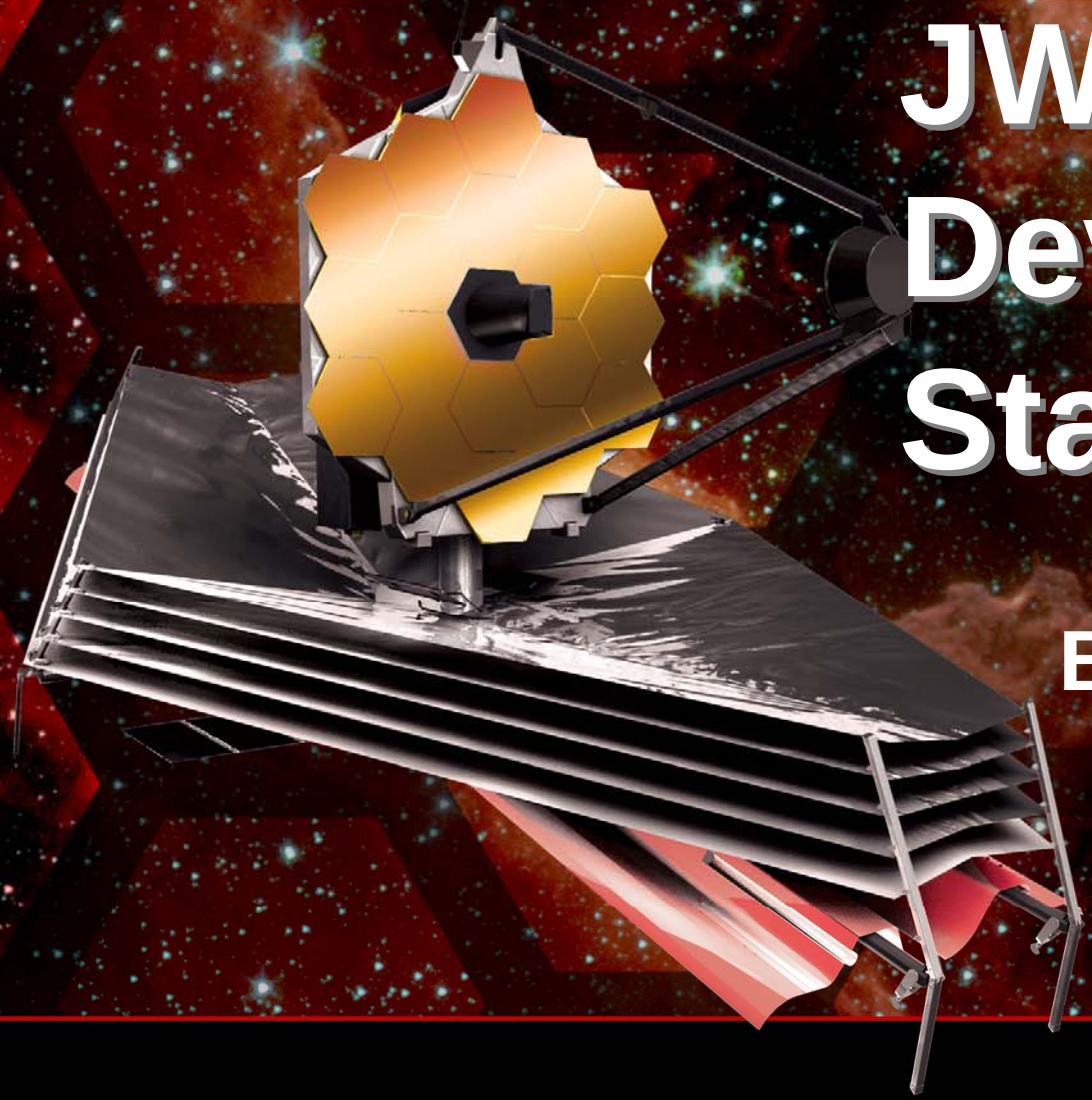
NORTHROP GRUMMAN



JWST Development Status

Bob Giampaoli

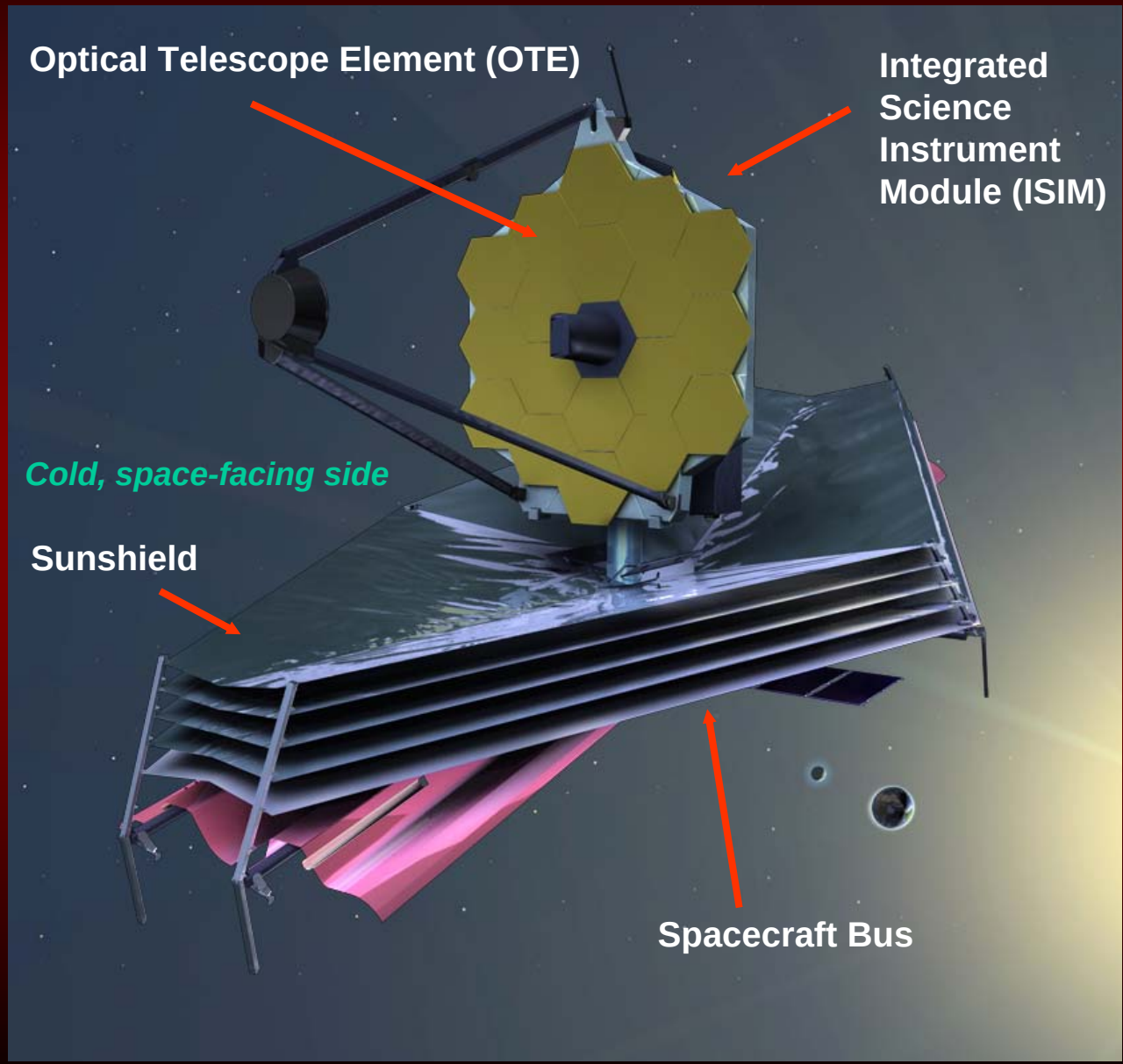
JWST Chief Systems Engineer
Northrop Grumman

10 November 2008
Large Space Apertures Workshop

James Webb Space Telescope

JWST Observatory

- General purpose infra-red observatory
- 2-29 micron imaging and spectroscopy using 4 instruments
- Passively cooled cryogenic (~40K) payload and telescope
- 5-10 year mission life limited by environmental degradation and station keeping propellant



JWST Mission Design

Sun

Earth

HST flies in Low Earth Orbit, ~300 miles up. Imaging is greatly affected proximity to Earth

- JWST will operate at the 2nd Lagrange Point (L2) which is 1 Million miles away from the earth

L2

JWST Full Scale Model at the National Mall

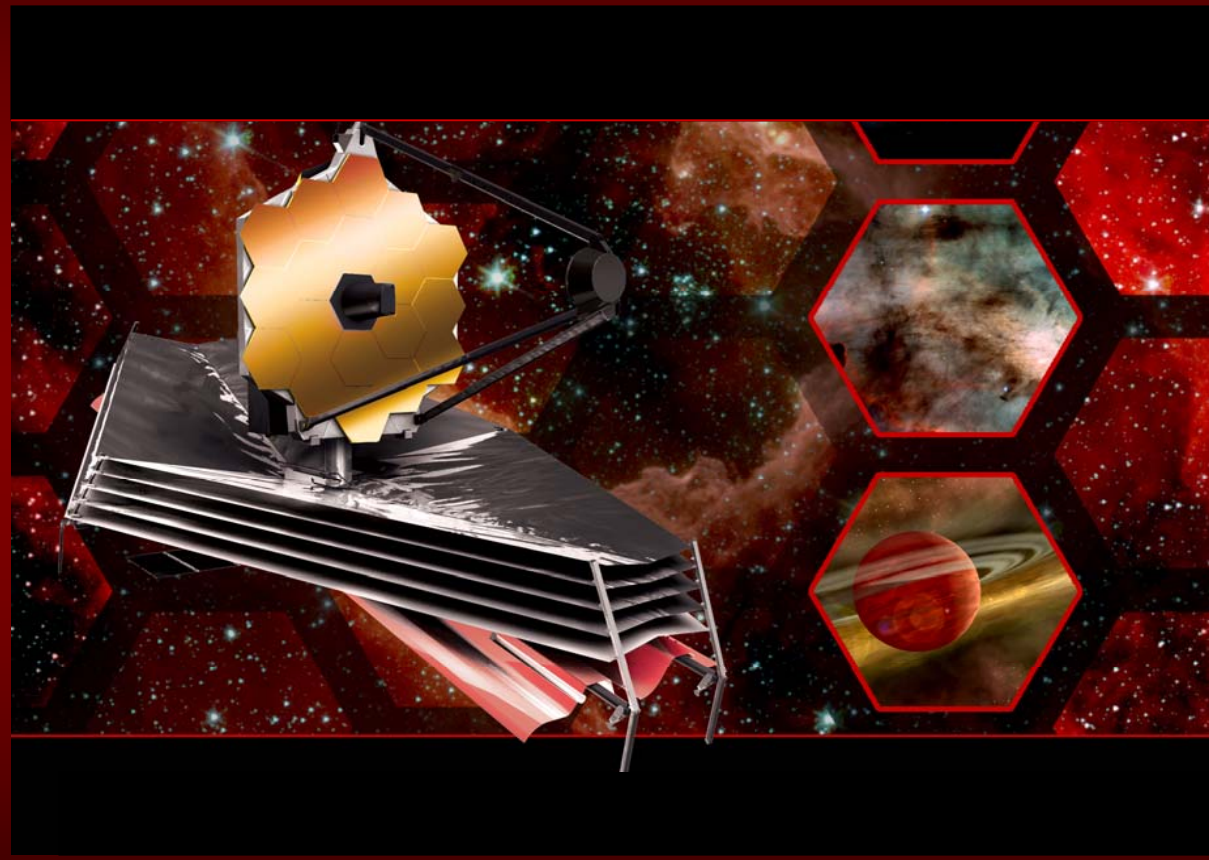
- 25 square meter light collecting area (6.5 meter diameter primary mirror)
- 18 light weight primary mirror segments
- 20 meter long by 12 meter wide deployable, 5 layer sunshield
- Cryocooler for mid-infrared instrument

Observatory Preliminary Design Complete

Critical Design will be completed in 2009

System Integration starts in 2011

Ready for launch in June 2013



Design Status

- JWST technology development was completed prior to Mission PDR
- Instrument Designs Complete and Qualification Underway
- First Mirror Ready for Cryogenic Figuring at NASA MSFC
- Pathfinder Mirror Support Structure Bonding Initiated

Sunshield Deployment Design Demonstrated

Progressing with Full Scale Engineering Models

Membrane material is space qualified


NASA
NORTHROP GRUMMAN
JWST is on track for the scheduled 2013 Launch