Monthly Space News

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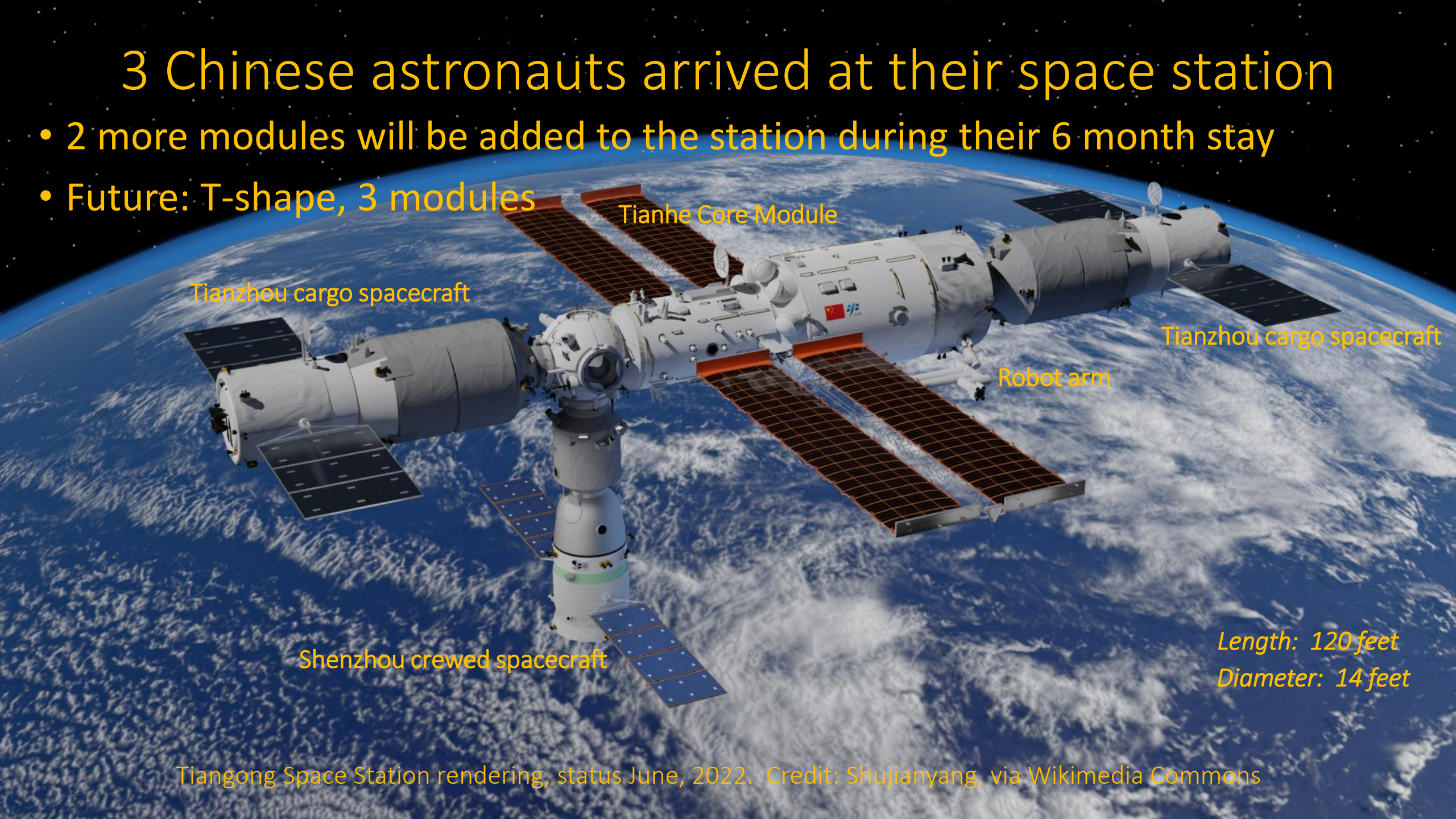
June 11, 2022

NSS North Houston Space Society

3 Chinese astronauts arrived at their space station

- 2 more modules will be added to the station during their 6 month stay
- Future: T-shape, 3 modules



Tiangong Space Station rendering, status June, 2022. Credit: Shujianyang, via Wikimedia Commons

Boeing Starliner unmanned test finally completed

- Starliner is the delayed alternate to SpaceX Dragon for crew delivery to ISS
- Unmanned test finally launched, docked at ISS, returned
  - 2 of 12 maneuvering thrusters failed, as did 2 smaller thrusters, but redundancy worked
    - May never know exact causes for maneuvering thrusters: failures are in disposable service module
  - Minor glitches in cooling and docking were addressed by actions of ISS crew
  - Completed with landing at White Sands, NM

Image credit:NASA TV

Image credit:NASA

James Webb Space Telescope update

- First high-res, full color images will be revealed July 12
- One of the 18 hexagonal mirrors was hit by a micrometeoroid
  - Smaller than a grain of sand, but bigger than could be tested for
  - 4 previous smaller hits – gradual degradation was expected
  - Mirror adjustments only partly compensated, but still better than mission requirements

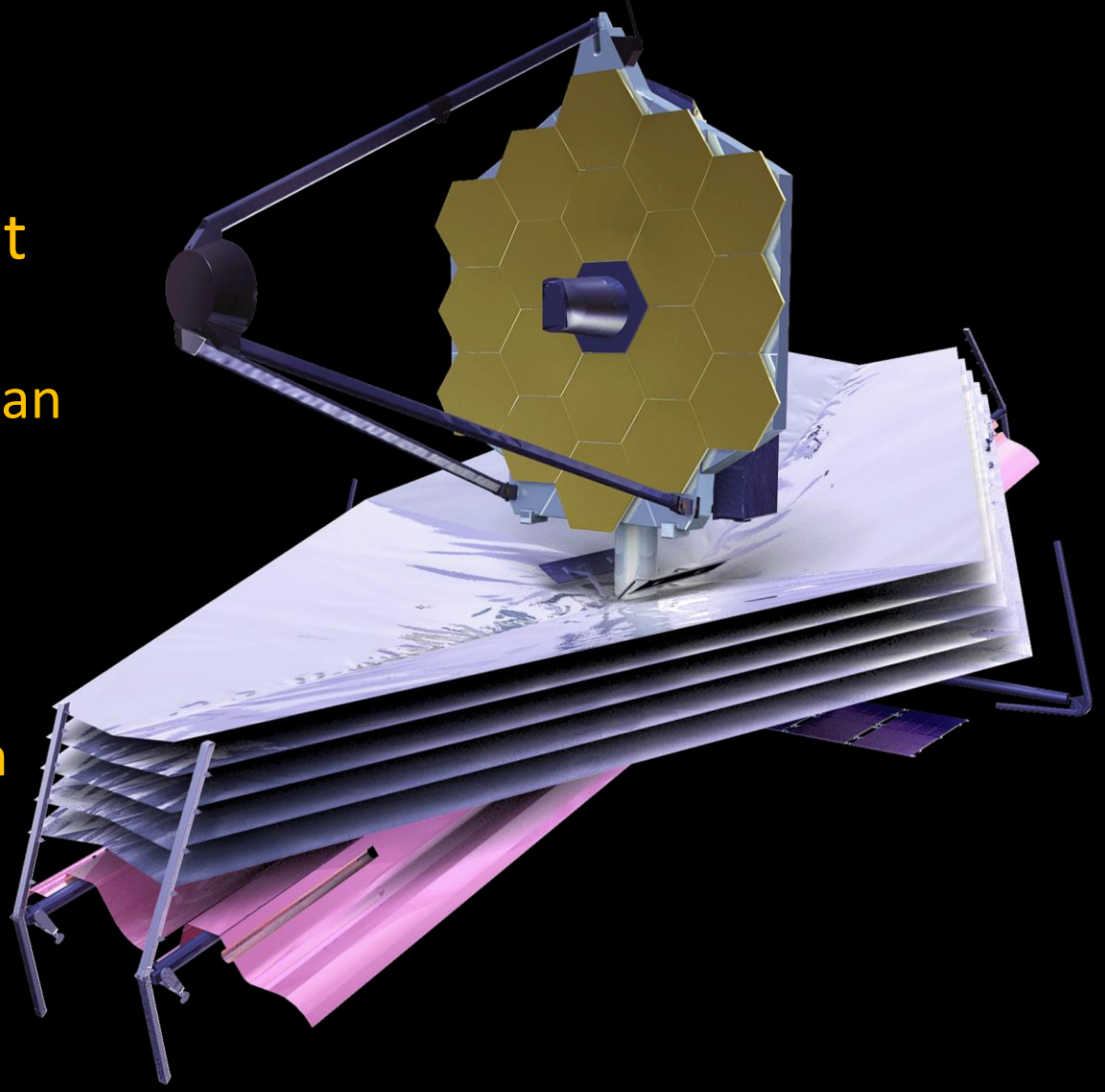


Image credit:NASA

Spacesuit update for Space Station and Artemis (Moon)

- NASA Moon spacesuits had been flagged as too late for first Artemis landing
- Aging ISS spacesuit use halted pending investigation of water in helmet
  - Over 40 years old, only 18 usable units on ISS
- NASA contracted up to $3.5B through 2034 for ISS, Artemis spacesuits
  - 2 competing teams (like Commercial Crew): Collins Aerospace & Axiom Space
  - Business model: renting expensive tuxedos to anyone, not selling small ships!
  - Fits required for 5% to 95% percentile on sizes
  - Available starting 2025, in time for Artemis 3 landing
- SpaceX is separately developing a spacesuit for space walks, not Moon use

Image credit: NASA

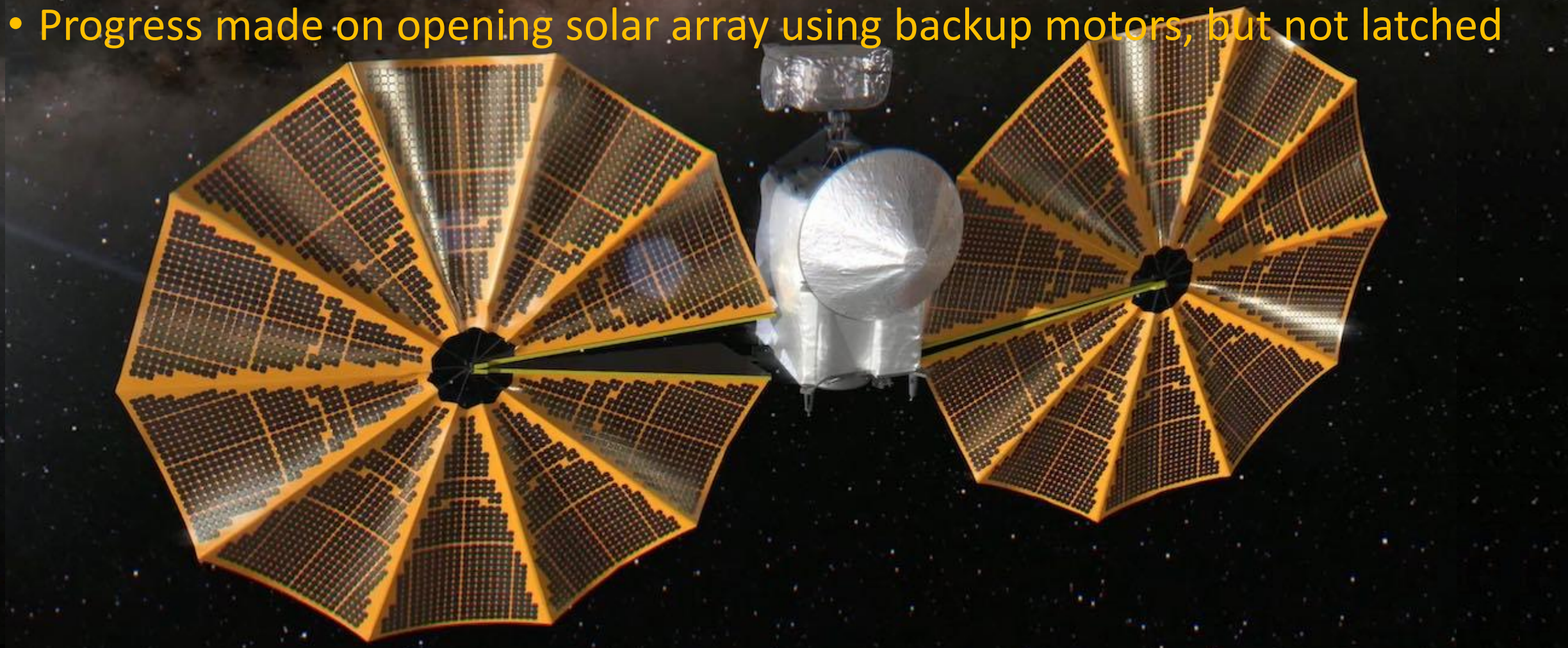
Nanoracks demo of metal cutting in orbit

- Cutting with no debris by high speed milling, melting the metal
  - Cutting same material as outer shell of a Vulcan Centaur rocket (316 stainless steel)
  - 10 minute demo with a Maxar robot arm, while still attached to Falcon 9 upper stage
- Goal: advance in-space manufacturing technology
  - Longer term: cutting, welding, re-using and assembling structures in space
  - Example use: converting used rocket stages into useful platforms like space habitats
- Launch was part of SpaceX “Transporter 5” launch of many small satellites
- Video or other results not released yet!

Official mission patch. Image credit: Nanoracks

NASA’s Lucy asteroid mission update

- NASA’s Lucy mission still on path to asteroids trapped near Jupiter L4 & L5
  - Launched Oct., 2021 on 12 year mission, including 3 Earth flybys for gravity assist
- Progress made on opening solar array using backup motors, but not latched



Miscellany

- Blue Origin performed its 5th New Shepard suborbital flight for 6 people
- NASA is commissioning a small study to review UAPs (UFOs)
  - 9 month study with unclassified report at end on how to proceed
  - Focus on identifying available data, how to collect future data, how to use it in future
  - Budget probably at most $100K

How many launches since the last meeting (May 14)?

Includes failed launches if they lift off the launch pad
Only includes launches attempting orbit or beyond

Falcon 9 Starlink launch 5/28/22
Credit: SpaceX

Launches since last meeting (May 14)

 May 14 – Falcon 9 – 53 Starlink (internet service) satellites

 May 18 – Falcon 9 – 53 Starlink (internet service) satellites. Now, 2,300 functioning

 May 19 – Atlas/Centaur – Boeing Starliner uncrewed test mission to ISS

 May 19 – Soyuz – Russian military spy satellite, probably optical camera for mapping

 May 20 – Long March 2C – 3 communications test satellites

 May 25 – Falcon 9 – “Transporter-5” smallsat rideshare: 59 payloads

 June 2 – Long March 2C – 9/240 Geely satellites testing autonomous driving constellation

 June 3 – Soyuz 2.1a – Progress cargo ship to International Space Station (ISS)

 June 4 – Long March 2F – 3 astronauts to Chinese Space Station for 6 month stay

 June 8 – Falcon 9 – Egyptian telecom satellite

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- Total: 10

Discussion & questions?

Image: NASA

SPACE AMBASSADORS

Featured speaker: Chris Kapp

- Turbomachinery and business consultant
- Professor of engineering at Lone Star College
- Started a turbomachinery joint venture in India
- NSS Space Ambassador
- MS Aeronautical Engineering, RWTH Aachen University (Germany)
  - Exchange student at Norwegian University of Science & Technology, Trondheim

NASA HUNCH

TOPIC: NASA Hunch Program

- High school students design, make, and test hardware and software for NASA (the International Space Station), with NASA guidance

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