

# **Role of the University in Mission Team Formation and Proposal Process:**

## **Arizona State University**

Lindy Elkins-Tanton



- From the top: How ASU supports mission competitions and PIs
- Peer support: The existing ASU mission ecosystem
- Improvements for the future



# From the Top: How ASU supports

Large proposal writing training, and supportive working groups

Proposal managers are available

Can negotiate for support and teaching releases



# Peer support: ASU ecosystem

22 active missions

Large shared facilities (clean high bays, thermovac, vibe, optical)

Collaborative culture

2 female mission PIs: Evgenya Shkolnik and myself

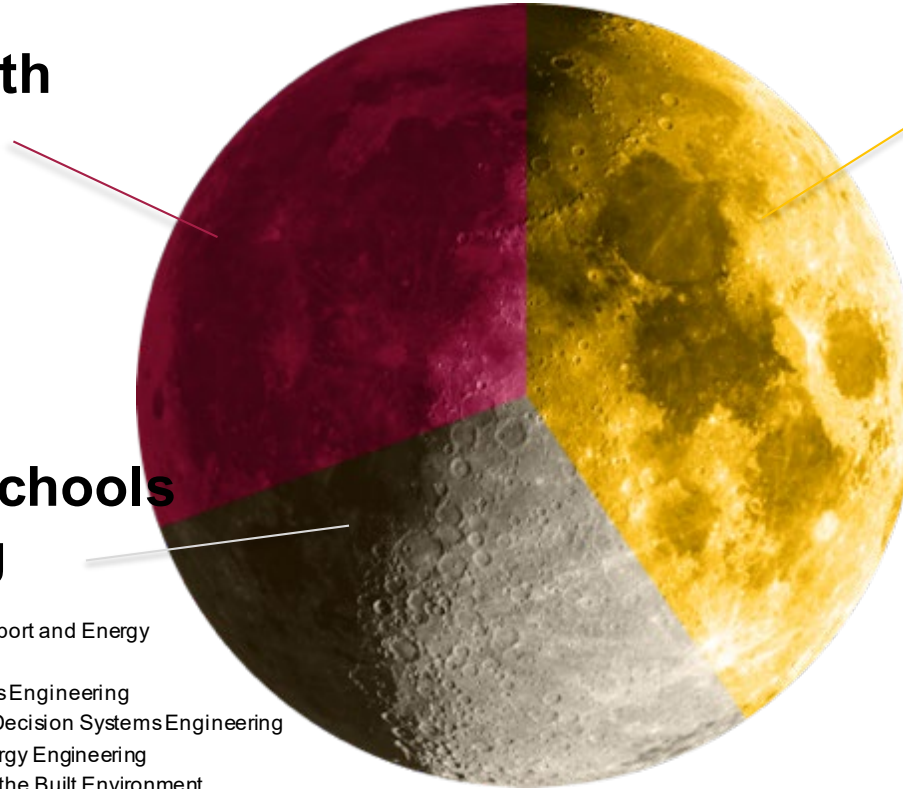


# 300+ Space Investigators at ASU

## School of Earth and Space Exploration

## Ira A. Fulton Schools of Engineering

The Polytechnic School  
School for Engineering of Matter, Transport and Energy  
School of Arts, Media + Engineering  
School of Biological and Health Systems Engineering  
School of Computing, Informatics, and Decision Systems Engineering  
School of Electrical, Computer and Energy Engineering  
School of Sustainable Engineering and the Built Environment



## Other

Barrett, The Honors College  
Beyond: Center for Fundamental Concepts in Science  
Biodesign Institute  
Center for Meteorite Studies  
Center for Global Discovery and Conservation Science  
College of Letters and Sciences  
Department of Biomedical Informatics  
Department of Management  
Department of Physics  
Department of Psychology  
Disability Resource Center  
Division of Educational Leadership and Innovation  
Interplanetary Initiative  
Julie Ann Wrigley Global Institute of Sustainability  
School for the Future of Innovation in Society  
School of Geographical Sciences and Urban Planning  
School of Human Evolution and Social Change  
School of Life Sciences  
School of Mathematical and Natural Sciences  
School of Mathematical and Statistical Sciences  
School of Molecular Sciences

# ASU's active relationships in space science and engineering

8

Private-sector  
companies

0

3

Universities

0

2

Government  
agencies, centers,  
laboratories

0

# ASU is active in 22 missions

Hardware lead in black  
Team member in orange

## PI'd missions

- Psyche (Discovery 14)
- LunaH-Map
- SPARCS
- Phoenix

## In Development

- Super Balloon-Borne Large Aperture Submillimeter Telescope for Polarization (Super BLAST-TNG) (2021)
- LunaH-Map cubesat Moon orbiter (2021)
- Lucy Thermal Emission Spectrometer (L'TES) (2021)
- James Webb Space Telescope (2021)
- Galactic/Extragalactic ULDB Spectroscopic Terahertz Observatory (GUSTO) balloon mission (2021)
- ShadowCam on Korea Aerospace Research Institute's Korea Pathfinder Lunar Orbiter (2022)
- Psyche mission (2022)
- Jupiter Icy Moons Explorer (2022) from ESA
- Spectro-Photometer for the History of the Universe, Epoch of Reionization, and Ices Explorer (SPHEREx) (2021)
- Star-Planet Activity Research CubeSat (SPARCS) (2023)
- Europa Thermal Emission Imaging System (E-THEMIS) on Europa Clipper (2024)
- REASON, SUDA, MASPEX on Europa Clipper (2024)
- Nancy Grace Roman Space Telescope (late 2020s)
- CASE on ESA's ARIEL mission (2028)

## In Flight

- Mastcam-Z on NASA's Mars 2020 Perseverance rover
- Emirates Mars Infrared Spectrometer (EMIRS) on UAE al-Amal orbiter
- Phoenix CubeSat – Earth orbiter
- OSIRIS-Rex Thermal Emission Spectrometer (OTES)
- Hayabusa 2 from JAXA
- MastCam on NASA's Curiosity Rover
- Lunar Reconnaissance Orbiter Camera (LROC) on NASA's LRO
- High Resolution Stereo Camera on ESA's Mars Express
- MARCI, CTX, CRISM on NASA's MRO
- Thermal Emission Imaging System (THEMIS) on NASA's 2001 Mars Odyssey orbiter
- Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) on NASA's Terra satellite

Emirates  
Mars  
Infrared  
Spectromet  
er (EMIRS)  
on UAE al-  
Amal orbiter

PI: Phil  
Christensen





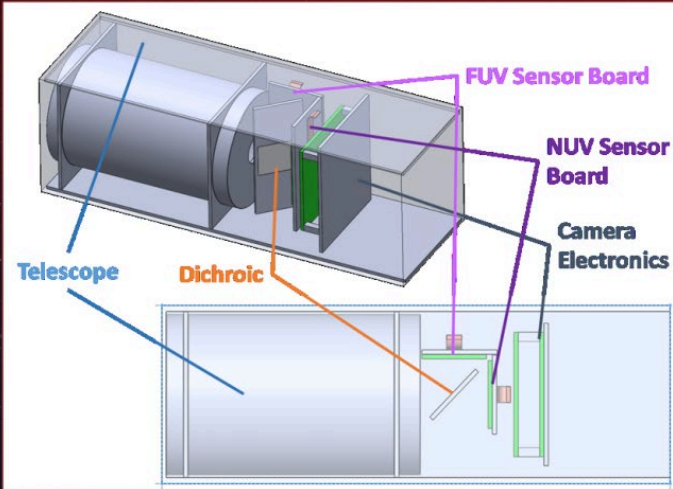
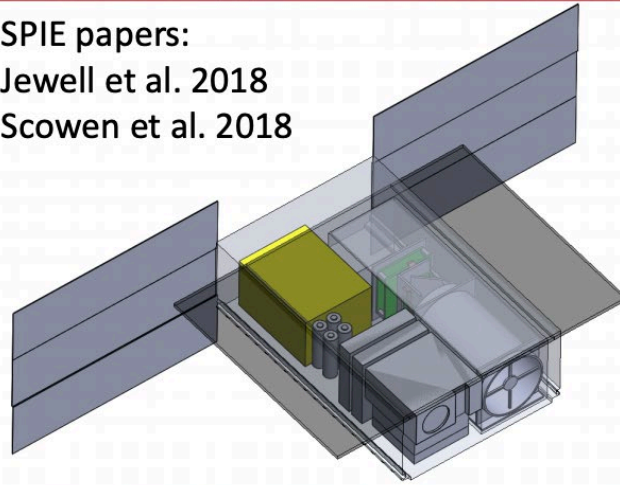
# Lunar Reconnaissance Orbiter Camera PI: Mark Robinson



# SPARCS

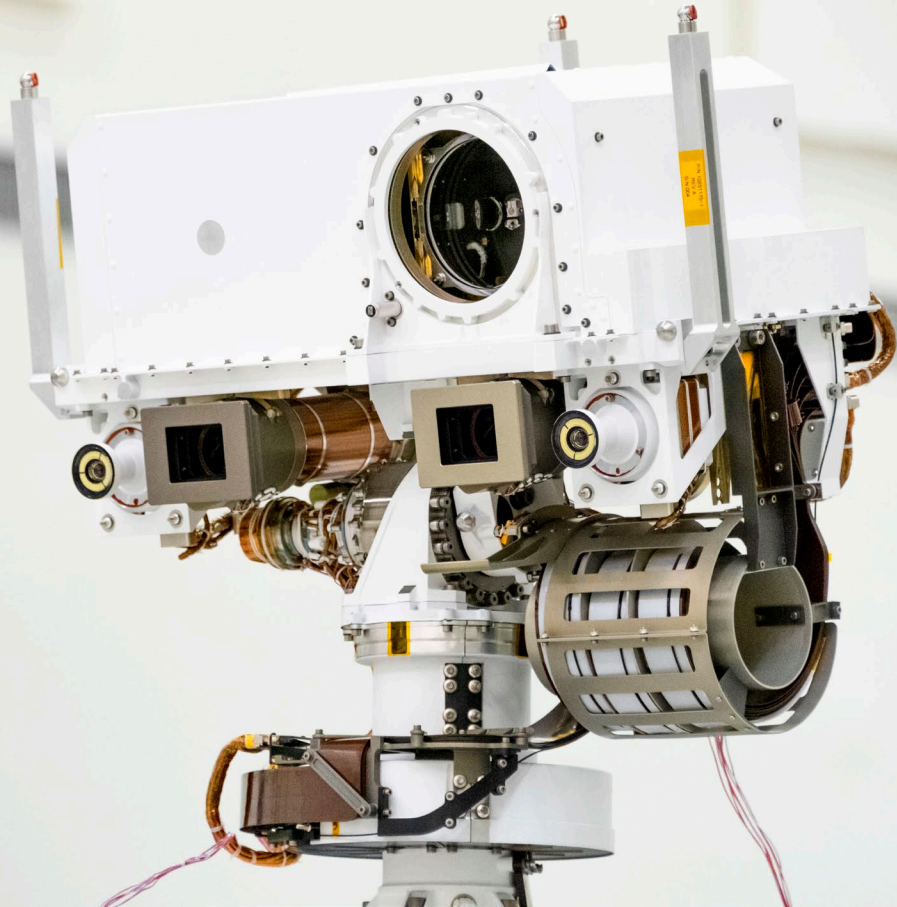
PI: Evgenya Shkolnik

SPIE papers:  
Jewell et al. 2018  
Scowen et al. 2018



Mastcam-Z  
on the  
Perseverance  
Rover

PI: Jim Bell



# Improvements for the future

## **Supporting junior faculty**

- Workload expectations
- Productivity expectations
- Preparation for promotion

## **Supporting and encouraging major proposals**

- Time for writing
- Advice on their own budget: EA, salary, teaching release, project mgt, travel, outreach
- Need support staff who are experienced with missions

## **Supporting faculty and projects in design and build, and in operations**

- Teaching and service releases
- Expected publication rate
- Facility maintenance



Psyche mission

PI: Lindy Elkins-Tanton

[psyche.asu.edu](http://psyche.asu.edu)

@MissionToPsyche

