



# ExoPAG

# TECHNO SIGNATURE SAG

Sofia Sheikh, on behalf of SAG 25

ExoPAG 33

January 4th, 2026

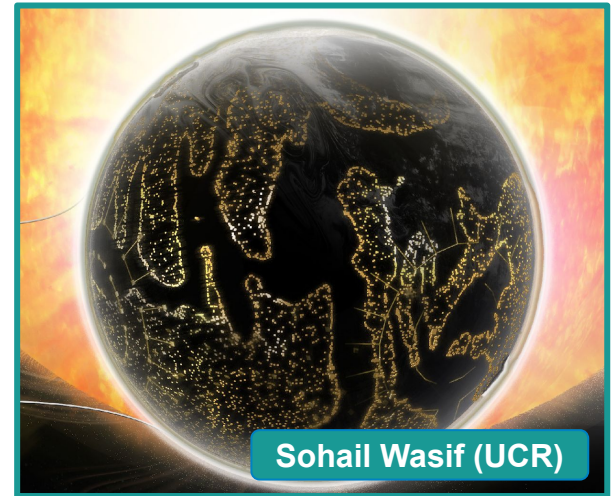


**?ETI**  
INSTITUTE



# A brief introduction to technosignatures

- “Technosignatures” = Astronomically-observable traces of technologically-capable life in the universe
- Sub-category of biosignatures
- Some technosignature detection techniques are directly analogous to biosignature techniques (e.g., CFCs in exoplanet atmospheres), others are unique (e.g., narrowband radio emission)
- Critical component to understanding the “origin, evolution, **distribution**, and **future** of life in the universe”



**SAG-25**  
9 leads  
~75 members



**Sofia Sheikh**



**Eddie Schwieterman**



**Daniel Angerhausen**



**Benji Fields**



**Jason Wright**



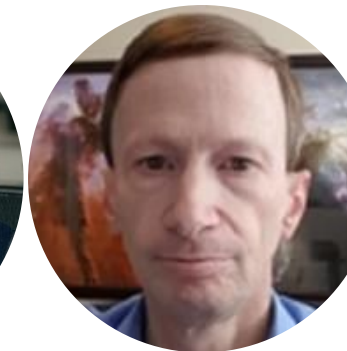
**Karen Perez**



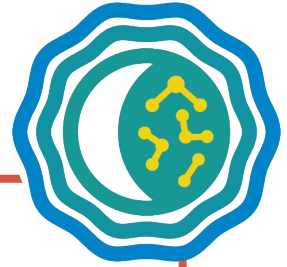
**Megan Grace Li**



**Adam Frank**



**Mark Elowitz**



# Technosignatures SAG-25: Goals

WG 1 (Exoplanet)  
WG 2 (Non-Exoplanet)

1. Investigate which technosignature investigations should play a role in NASA's exoplanet and planetary science portfolios.
2. Identify the most promising technosignature investigations to prioritize for funding and mission development.
3. Identify science and technology gaps relevant to technosignature searches.
4. Identify existing NASA programs most relevant to technosignature searches, especially those in exoplanets and planetary science, and determine how they can be more responsive to and supportive of technosignature searches.

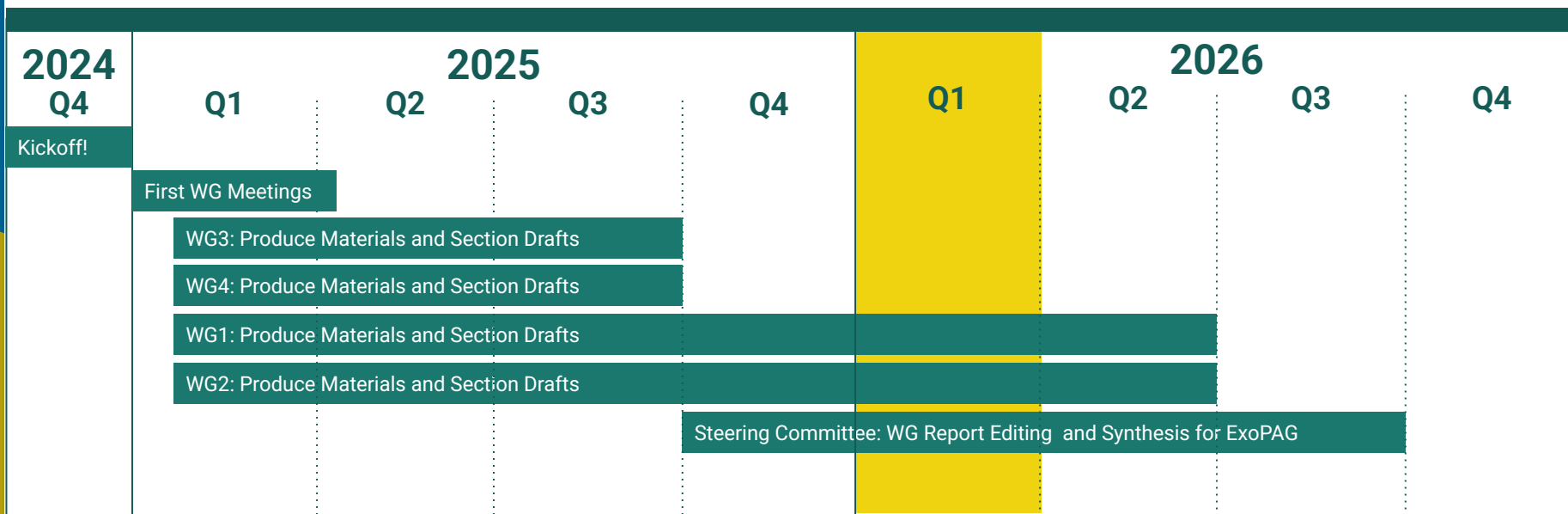
WG3

5. Identify best practices for NASA program officers to select and provide guidance for review panelists to grade and discuss technosignature proposals in XRP and other programs.

WG4

6. Identify potential new initiatives to build community and intercommunications with other astrobiology efforts.

# Technosignatures SAG-25: Timeline





# Technosignatures SAG-25: WG1 and WG2 progress

- **Goal:** Identify gaps and opportunities for specific signatures to be prioritized and developed in relation to NASA goals/missions
- Using the NASA Technosignature Study as a resource (Q4 2025)
  - **41 technosignatures and 109 search approaches across wavelengths**
    - **~40% directly related to exoplanets or planetary science**
- Both WGs still collating references, writing sections, contextualizing findings

9:00 AM – 9:10 AM PST



## **331.01 - The NASA Technosignatures Study**

Part of 331 - Technosignatures and SETI: Methods, Surveys, and New Results | Phoenix Convention Center, 229 A

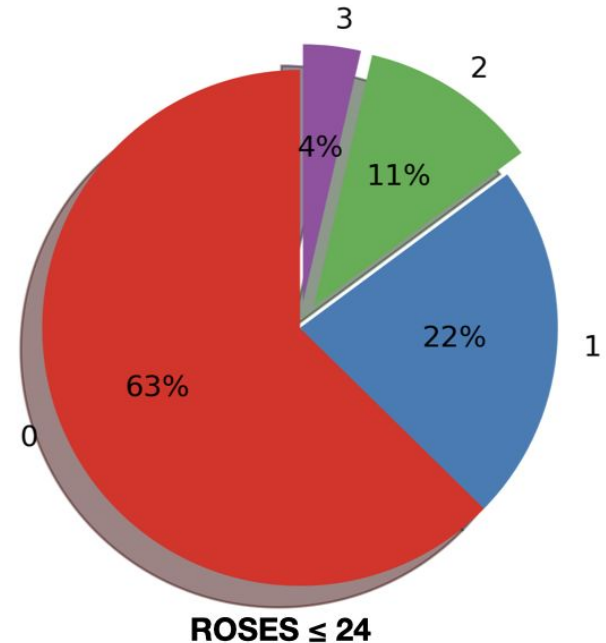
Session Type: Oral

**Learn more at Nick  
Siegler's Talk on Wed!**

# Technosignatures SAG-25: WG3 progress



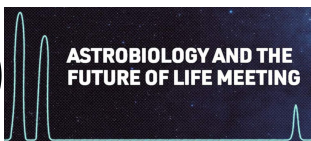
- **Goal:** Identify how technosignatures could be better integrated in the NASA proposal process
- **Example Activity:** Evaluated all 261 total unique ROSES calls from 2016 to 2024 for technosignature relevance, scoring from 0–3
  - **FINDING:** There are **37 technosignature-relevant calls within ROSES across nearly every Division**, but funded proposals have been concentrated into only a few
- Draft report complete!



# Technosignatures SAG-25: WG4 progress



- **Goal:** Identify new and existing initiatives to improve synergies between technosignatures and other existing NASA astrobiology programs
- **Preliminary finding: Best course is to connect and support the wide range of *existing* technosignature programs:**
  - Hands-on technosignature training opportunities
  - Broader NASA technosignature activities (AFoL)
  - Opportunities within NASA/non-NASA astrobiology organizations
  - Opportunities outside of academia
- Draft report complete!



**BREAKTHROUGH  
LISTEN**





# Technosignatures SAG-25: Leadership in the NASA DARES RFI

- Organized submission of **13 technosignature-related responses to the NASA DARES RFI**
- Task Force 1 incorporated material on technosignature science:
  - Recognized that technosignature research has diversified and advanced substantially since 2015 and should be better incorporated in upcoming strategy documents
  - Noted that the technosignature RFIs had a strong emphasis on Early Career Researchers, with findings applicable to all ECRs

**Request for Information: Development of NASA-DARES 2025: The NASA Decadal Astrobiology Research and Exploration Strategy**

Number:  
NNH25ZDA002L

Directorate:  
Science Mission Directorate

Type:  
Request for Information

Status:  
Closed



# Technosignatures SAG-25:

## Summary of SAG activities so far

- Established mission statement, goals, membership, WG structure (Q4 2024)
- Commenced WG meetings, began analysis for WG goals (Q1 2025)
- Organized 13 submission to the DARES RFI, resulting in meaningful inclusion of technosignatures in DARES process (Q2 2025)
- Finished 2 of 4 WG report drafts (Q4 2025)
- On track to finish work within the original 2 year timeline, even with work interruptions