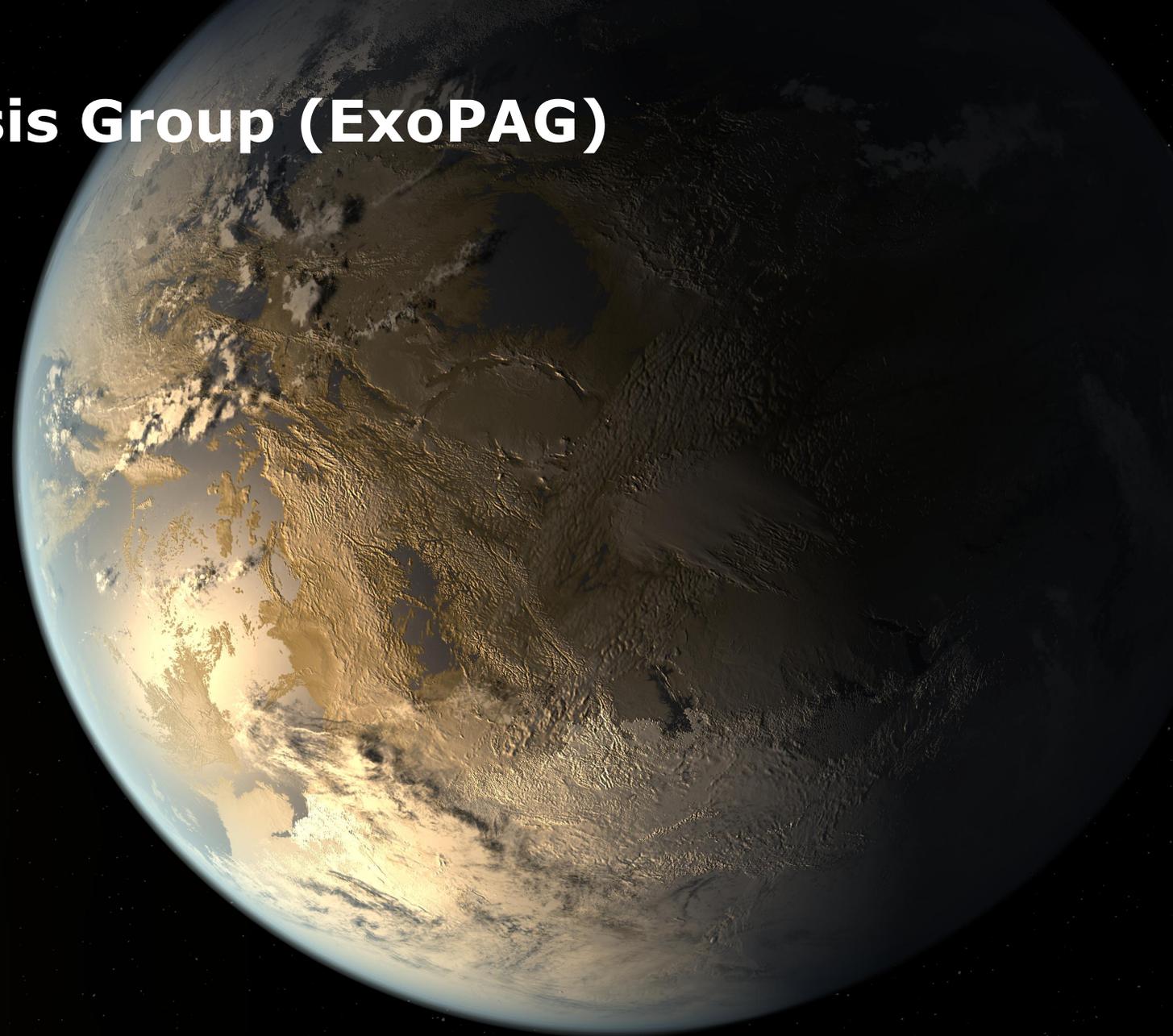


Exoplanet Program Analysis Group (ExoPAG) Report to APAC

Ilaria Pascucci (U. Arizona)
Chair, ExoPAG Executive Committee

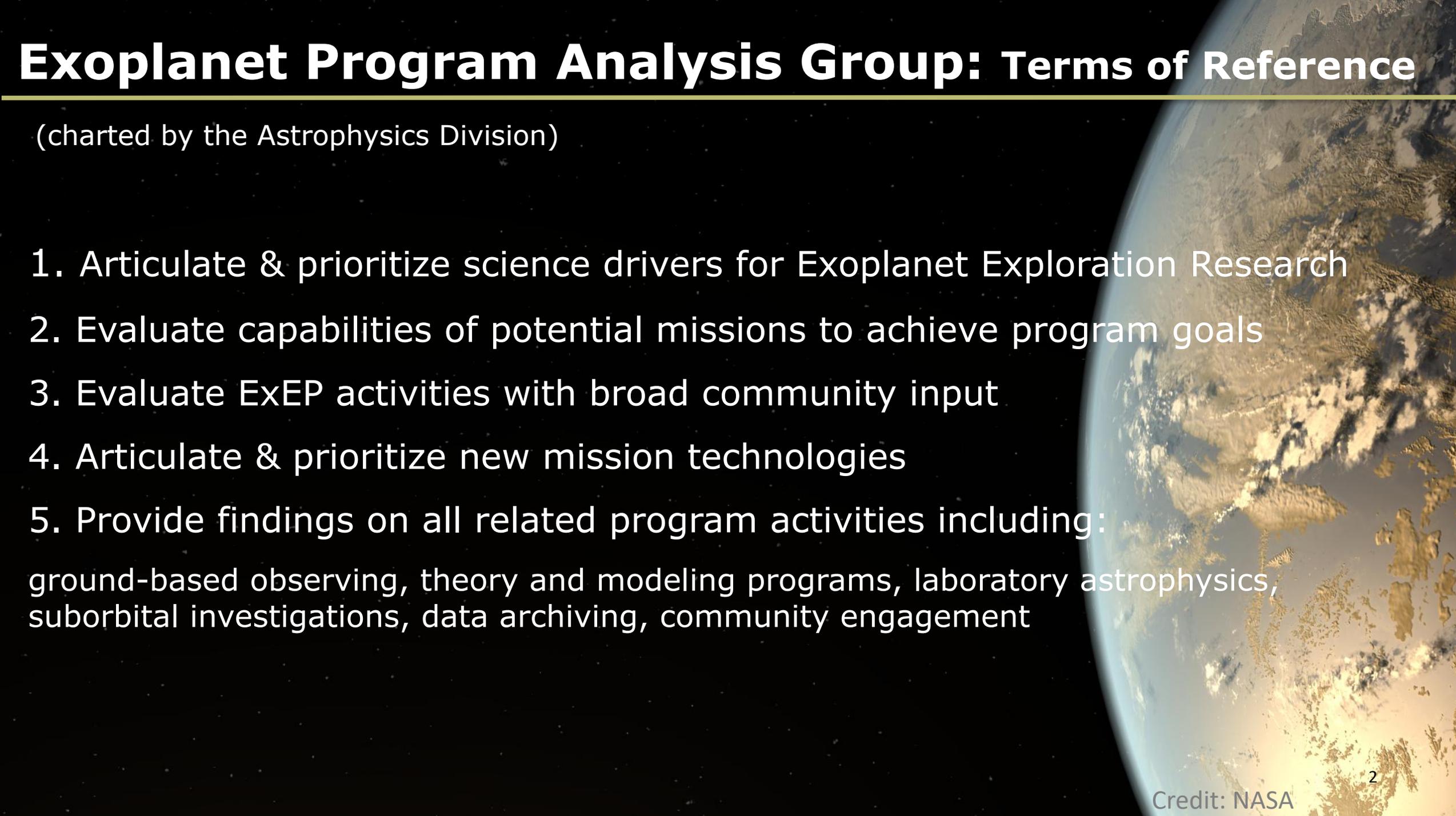
March 29-30, 2023



Video available here: https://arizona.zoom.us/rec/share/yT_1_Z3wQI-stJa2Ltlq0zo9aZaUy1ta5P7GD3dOR_vMqlp4lZZbfYmlo_lxYUWc.xu38Y002umJeRRgl?startTime=1679433920000

Credit: NASA

Exoplanet Program Analysis Group: Terms of Reference



(charted by the Astrophysics Division)

1. Articulate & prioritize science drivers for Exoplanet Exploration Research
2. Evaluate capabilities of potential missions to achieve program goals
3. Evaluate ExEP activities with broad community input
4. Articulate & prioritize new mission technologies
5. Provide findings on all related program activities including:
ground-based observing, theory and modeling programs, laboratory astrophysics,
suborbital investigations, data archiving, community engagement

Iliara Pascucci <i>Chair</i>	The University of Arizona
Natasha Batalha	NASA-Ames
Jacob Bean	The University of Chicago
Michael Bottom	The University of Hawaii
Ofer Cohen	University of Massachusetts Lowell
Knicole Colon	NASA GSFC
John Debes	STScI
Diana Dragomir	University of New Mexico
Erin May	Johns Hopkins Applied Physics Laboratory
Bertrand Mennesson	Jet Propulsion Laboratory/Caltech
Laura Schaefer	Stanford University
John Wisniewski	The University of Oklahoma
Michael Meyer <i>Past Chair, Emeritus</i>	University of Michigan
Hannah Jang-Condell, <i>Executive Secretary, Astrophysics Division</i>	NASA Headquarters
Douglas Hudgins, <i>Program Scientist, Exoplanet Exploration Program</i>	NASA Headquarters
Doris Daou, <i>NASA Planetary Science Division Liaison</i>	NASA Headquarters
Richard Eckman, <i>NASA Earth Science Division Liaison</i>	NASA Headquarters
Galen Fowler, <i>NASA Heliophysics Division Liaison</i>	NASA Headquarters

2023 ExoPAG Executive Committee members

Many ongoing and new activities that EC members lead or contribute to...

ExoPAG ongoing & recent activities I (since the last APAC meeting)

- Organize monthly ExoPAG EC meetings (10/19, 11/16, 12/21, 2/15, 3/15), joint PAG EC Chair meetings (3/9), rep. to APAC (I. Pascucci)
- Ongoing activities with the Planetary Science Division: Exoplanets in Our Backyard workshop (Nov. 2-4, 2022, NExSci funded 17 early career scientists) & Planetary Science Advisory Committee meeting (last meeting Feb. 28, 2022) (rep.: L. Schaefer)
- ExoPAG27 meeting in Seattle before the AAS (all EC members)

ExoPAG 27 (Jan 7-8, 2023, Seattle Convention Center)

- **Attendance:** > 100 people in person and ~40 remote
- **Major changes:**
 1. More accessible presentations (few acronyms+more background, **D. Dragomir & O. Cohen**)
 2. Group presentations by topic (2 talks on the State of the Profession)
 3. Mini-symposium with contributions from early-career scientists (**E. May**)
 4. Two structured discussions proposed by the community
 5. Feedback survey (positive about presentations)
- **Website** with all info (including Code of Conduct and most presentations):
<https://exoplanets.nasa.gov/exep/events/388/exopag-27/>

- Two structured discussions proposed by community members
- Review of progress on past suggested actions
- New ideas for ExoPAG priorities and activities
- EC interested in further engaging the community (feedback survey + more time to gather inputs at the next ExoPAG meeting)

ExoPAG 27 : Structured discussions proposed and led by community members

1. **Zero Proprietary Period** : proposed and led by Prof. J. Wright (Penn State). Started with a presentation that included community inputs, many comments from members at all career levels. Wright's presentation can be found here: <https://drive.google.com/drive/folders/1fDJp-fT61-eq3tVBCz9k9oqfTH6dvAGB>
 2. **Biosignature Assessment Standards** : proposed and led by Dr. Shawn Domagal-Goldman (Goddard), framework to establish the authenticity of possible biosignature signals
- **Summary** of the business meeting discussion (**M. Bottom + EC review**): https://exoplanets.nasa.gov/internal_resources/2676/business_meeting_summary.pdf

ExoPAG ongoing & recent activities II (since the last APAC meeting)

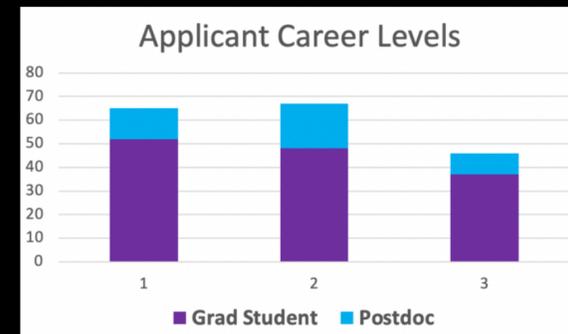
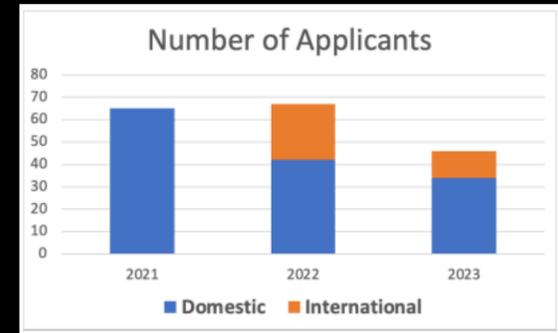
- Call for Nominations to the ExoPAG EC, deadline Feb 17 (EC in the process of reviewing applications)
- Great Observatory Maturation Program (GoMaP) workshop II, 11-13 Oct. (rep.: B. Mennesson & M. Bottom): ~30 science gaps proposed for precursor, whittled down to ~20: <https://exoplanets.nasa.gov/exep/astro2020-precursor-sci-workshop2/> EC provided inputs to the science gaps and summary of the exoplanet portion
- Cross-AG IDEA working Group (rep.: E. May): cross AG IDEA response to the New Frontiers Draft AO in relation to inclusion plans (most ExoPAG EC members were in favor)
- ExoExplorers Program (rep.: K. Colon & N. Batalha)

ExoExplorers Program Update

Steering Committee: T. Kataria (chair), N. Batalha, J. Christiansen, K. Colón

The Exoplanet Explorers (ExoExplorers) Science Series, sponsored by the ExoPAG Executive Committee and the NASA's Exoplanet Exploration Program, aims to enable the professional development of a cohort of graduate students and/or postdocs in exoplanet research ("ExoExplorers")

- The **third year** of the Exoplanet Explorers Science Series runs from **January-June 2023**
- The cohort for this year is composed of 12 early career scientists who come from institutions across the US and Canada (<https://exoplanets.nasa.gov/exep/exopag/exoexplorers/exoexplorers/>)
- The **ExoGuides** for this year are Nestor Espinoza (STScI), Yamila Miguel (Leiden University), Ben Montet (University of New South Wales), and Evgenya Shkolnik (Arizona State University) (<https://exoplanets.nasa.gov/exep/exopag/exoexplorers/exoexplorers-exoguides/>).
- **Activities** planned by the ExoExplorer Steering and Organizing Committees for the ExoExplorers include **science talks** by the cohort members that are widely advertised to the broader astronomical community, **meetings with the ExoGuides**, **professional development activities**, and **social hours**. The Steering/Organizing Committees also facilitate introductions and 1-on-1 meetings between ExoExplorers and other professional researchers in related fields.
- There are **typically ~50 attendees to the ExoExplorers**
- The first cohort of ExoExplorers also independently organized a **Special Session at AAS 241 in January 2023** on *The ExoExplorers: Early-Career Perspectives on the Intersection of Exoplanet Science and DEIA in Astronomy*.



ExoPAG ongoing & recent activities III (since the last APAC meeting)

- *New Great Observatories* cross-PAG SAG (ExoPAG co-lead: Christiansen, Liaison to ExoPAG EC: Meyer): report in Early 2024 about the scientific advances enabled by a fleet of future Great observatories

- Science Interest Groups (SIGs) and Study Analysis Groups (SAGs):
 - SIG2 "Exoplanets Demographics", one white paper completed (Christiansen & Meyer)
 - SIG3 "Exoplanets Solar System Synergies", on-going (Meadows & Mandt)
 - SAG23 "The Impact of Exo-Zodiacal Dust on Exoplanet Direct Imaging Surveys" (Debes, Rebollido, Hasegawa)

- **Completed** a white paper on proposed reporting formats to enable exoplanet demographics studies. The paper will be soon posted on the ExoPAG/SIGs website
- **New coordinators** have been solicited, will be **reviewed by the EC**
- Considering a white paper on uncertainties in the occurrence of habitable-zone Earth-size planets

ExoPAG SAG 23

Co-leads: [J. Debes](#), Y. Hasegawa, I. Rebollido

The Impact of Exo-Zodiacal Dust on Exoplanet Direct Imaging Surveys

SAG23 includes ~38 members working on eight major subject areas:

- A Catalog of Dusty Systems around Nearby Stars (lead: Steve Ertel)
- A review of host dust systems (leads: Steve Ertel and William C. Danchi)
- The theory of Exozodi Sources and Dust Evolution (lead: Mark Wyatt)
- Post-Processing and Detection of Extended Sources (leads: Ewan Douglas, Max Millar-Blanchaer)
- Pan-Chromatic Radiative Transfer of Exozodis (lead: Ramya M. Anche)
- Prioritization of Precursor Observational Studies of Debris Disks/Exozodis for future direct imaging missions (leads: Max Millar-Blanchaer, William C. Danchi)
- Prioritization of Precursor Theoretical Studies of Debris Disks/Exozodis for future direct imaging missions (lead: Jess Rigley)
- Update and prioritization of ExEP Gaps relevant to Exozodis (lead: Emily Rickman)
- A Review of the Solar System's Zodiacal Cloud (leads: Neal Turner, Geoff Bryden)

ExoPAG SAG 23

The Impact of Exo-Zodiacal Dust on Exoplanet Direct Imaging Surveys

Co-leads: [J. Debes](#), Y. Hasegawa, I. Rebollido

March 2023 Update

- Subject area quick highlights:
 - All subject areas have been meeting routinely on a ~monthly cadence
 - Hot dust review on track to be ready and submitted by spring/summer 2023
 - Dust disk archive leveraging the starchive infrastructure: data ingest ongoing (starchive.org; PI: A. Tanner)
 - Several subject areas wrapping up literature reviews and study scopes by spring. **Current timeline is full SAG report by late fall 2023**
- SAG 23 Workshop preparation: organizing committee has been formed, venue and timing being finalized.

ExoPAG 28 meeting

announcement on exopagannounce@jpl.nasa.gov

The EC considered multiple options and voted to hold the ExoPAG28 meeting just before the DPS 2023 meeting in San Antonio, Texas. The focus will be on strengthening the connections between the astronomy and planetary communities

55th DPS Meeting

Overview

DPS 2023

55TH ANNUAL MEETING OF THE DIVISION
FOR PLANETARY SCIENCES JOINT WITH EPSC

SAN ANTONIO, TEXAS 1 - 6 OCTOBER 2023