

Exoplanet Program Analysis Group (ExoPAG) Report to PAC

Diana Dragomir (U. of New Mexico)
ExoPAG Executive Committee Liaison

July 10, 2024

Credit: NASA/JPL-Caltech

ExoPAG ongoing & recent activities

- Continued monthly ExoPAG EC meetings (4/17, 6/12)
- Reviewed applications for new ExoPAG EC members (new members are Thomas Beatty, Julien Girard, Chuanfei Dong, Sarah Peacock)
- ExoPAG 30 meeting, at the AbSciCon, Rhode Island
- **Fostering cross-PAG communications:** VEXAG and OPAG shared their activities at the 3/20 and 4/17 ExoPAG EC meetings + contributed presentations to ExoPAG30; ExoPAG liaisons are **Beatty** for OPAG and **Dong** for VEXAG
- Working on implementing community suggestions: logo, early career engagement



- Preparing the ExoPAG 31 meeting at the winter AAS

Happenings at ExoPAG 30

- Presentations from Lori Glaze, and VEXAG, MEPAG, OPAG, OWWG, cross AG IDEA WG and NExSS representatives
- Updates from SIG 3 (Exoplanet/Solar System Synergies)
- Interdisciplinary Exchange Sessions - aiming to identify current challenges in astrobiology and adjacent fields
 - Atmospheric mass-loss and water-loss
 - Astrobiology and exoplanet habitability
 - Climate Studies and Comparative Atmospheric
 - Telescope and instruments enabling the search for life
- Early Career Researcher Lightning Talks

Extra Slides

SIG 3 Exoplanet/Solar System Synergies Update

Leadership: Victoria Meadows (UW/NExSS/ExoPAG), Kathy Mandt (GSFC/OPAG), Eric Lopez (GSFC)

Goal: To provide a forum for **interaction between the Solar System and exoplanet communities** on topics of mutual interest that also benefit NASA and the broader scientific community.

Recent Activities:

- SIG3 meetings held on February 20th and March 4th to discuss implementation of new activities
- Working on development of an **expertise directory and community-identified papers** of interest between the Solar System and exoplanet disciplines

Future Activities

- Starting up a 1 hr “micro-workshop” series with presenters from SS, Exo and Helio giving short common-interest presentations, with ample time for community discussion. Goal is to **identify needed areas of cross-disciplinary research, and interdivisional “science gaps” for ExEP.**
- Develop a **community review paper** to explore synergies needed between the science of all four directorates to address initiatives identified in Astro2020 and Origins, Worlds and Life.
- Upcoming presentations and member recruitment at EiOBY III and at the AbSciCon ExoPAG

SAG23 “The Impact of Exo-Zodiacal Dust on Exoplanet Direct Imaging Surveys”

(Chairs: Debes, Hasegawa, Rebollido)

SAG23 includes ~40 members working on eight major subject areas

- Report section first drafts were largely turned in by late May
- Most drafts are under internal review—about half are currently in the revision stage
- **Fall 2024: final revisions and release of the report**

SAG25 Update: Technosignatures

MOTIVATION:

- Structure finalized

Lead: Sofia Sheikh

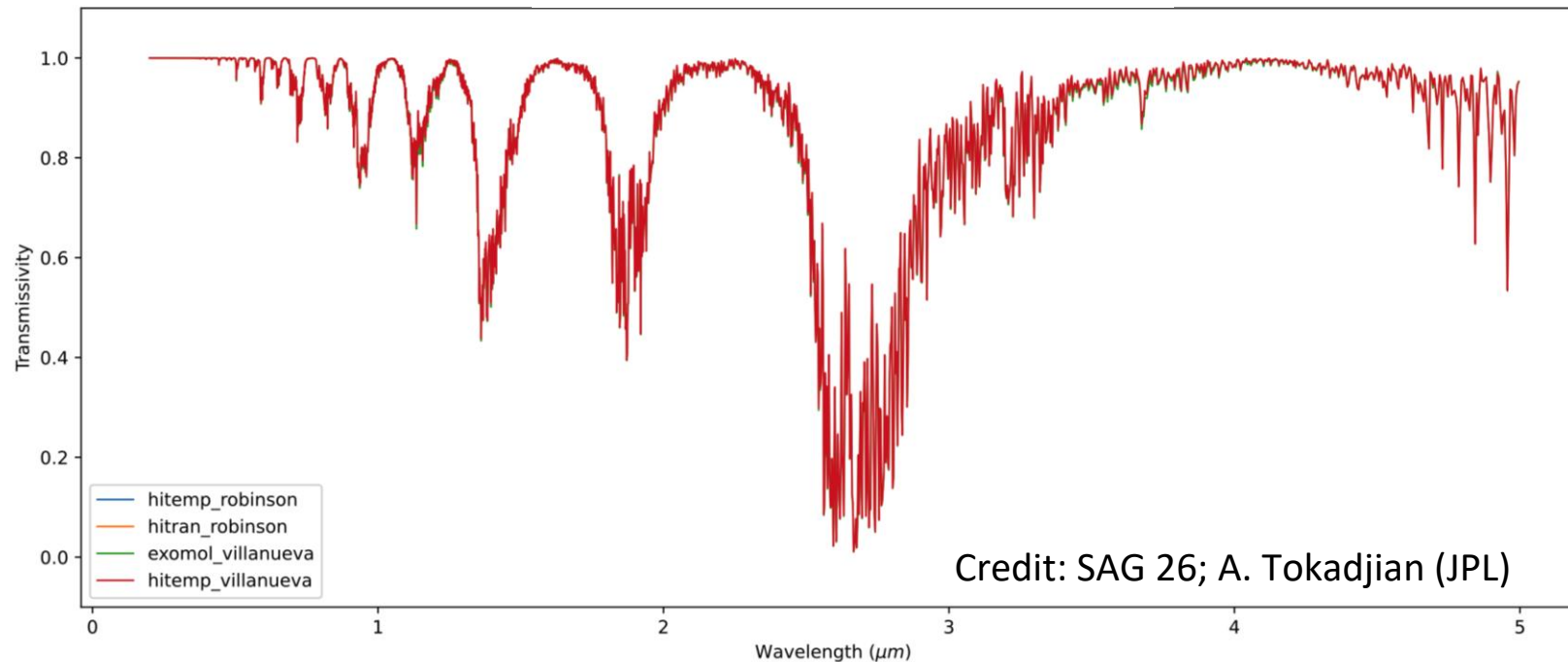
Steering Committee: Mark Elowitz, Adam Frank, Eddie Schwieterman, Jason Wright

- Opportunity to participate announced and applications received

SAG 26 Update – Exoplanet Reflectance Spectroscopy

- Spring 2024 kick-off
- Over 20 active participants
- Ongoing bi-weekly telecons
- In-person meet-up at Exoplanets V
- Website: <https://hwo-sag26.github.io/hwo-sag26.github.co/index.html>
- Ongoing opacity intercomparisons
 - Open [database](#) for submissions

Example Opacity Comparison



ExoPAG ongoing SIGs and SAGs

- Active Science Interest Groups (SIGs) and Study Analysis Groups (SAGs):
 - SIG2 "Exoplanets Demographics" (Fernandes & Johnson) -> focus on Eta-Earth report
 - SIG3 "Exoplanets Solar System Synergies", on-going (Meadows & Mandt)
 - SAG23 "The Impact of Exo-Zodiacal Dust on Exoplanet Direct Imaging Surveys" (Debes, Rebollido, Hasegawa)
 - SAG24 "Exploring the Complementary Science Value of Starshade Observations" (Seager & Shaklan)
 - SAG25: "Technosignatures" (Sheikh, Elowitz, Frank, Schwieterman, Wright)
 - SAG26: "Exoplanet Reflectance Spectroscopy for the Habitable Worlds Observatory" (Hu, Damiano, Robinson, Meadows, Lustig-Yaeger, Mandell, Villanueva, Young, Quanz, Alei, Kreidberg)

Exoplanet Exploration
(ExEP)
Program office at JPL



ExoPAG EC

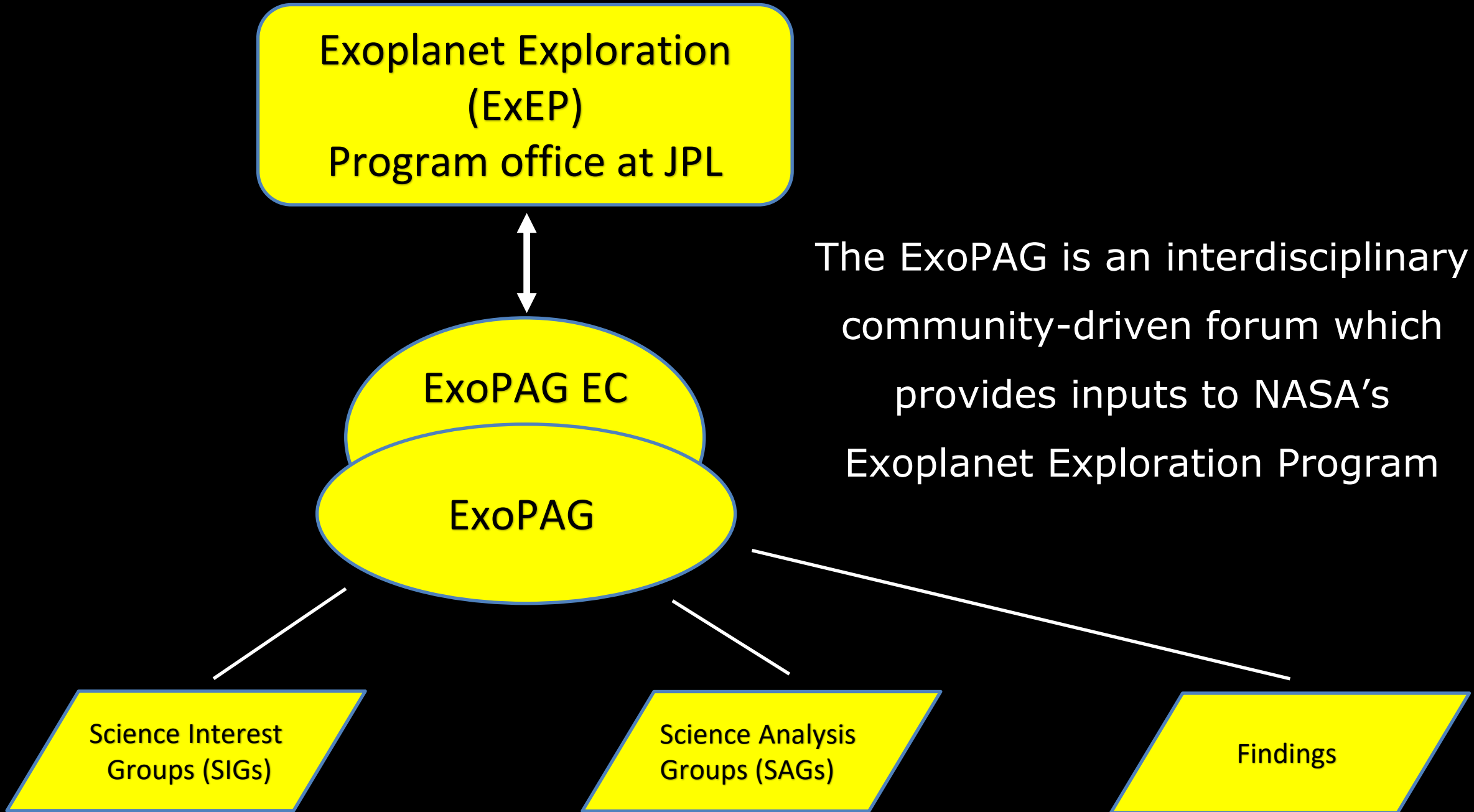
ExoPAG

The ExoPAG is an interdisciplinary
community-driven forum which
provides inputs to NASA's
Exoplanet Exploration Program

Science Interest
Groups (SIGs)

Science Analysis
Groups (SAGs)

Findings



ExoExplorers Program Update

(ExoPAG EC rep.: [M. Rice](#))

The Exoplanet Explorers Science Series, sponsored by the ExoPAG Executive Committee and 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 program is completing its fourth year!

The ExoExplorer Steering and Organizing Committees received positive [feedback from the cohorts via an anonymous survey](#)

- Ongoing discussions on: 1. adding an in-person component based on demand and as funding permits and 2. how to build the ExoExplorer community
- End of the 4th year debrief with current cohorts (July 8)
- [Applications for the 5th cohort and for the 2025 ExoGuides will be announced in the Fall](#)



ExoPAG 30

May 5, 2024

Providence, RI



Goal: engage different communities in the search for the Life in the Solar System and Beyond

Attendees: ~50 in person and another 50 remote from different backgrounds

May 5, 2024

Session 1 (Chair: Ilaria Pascucci)		Speaker	Time (EDT)	Duration	End
	Welcome + ExoPAG goals and overview of activities	Ilaria Pascucci (ExoPAG Chair, U. Arizona)	9:30 AM	0:10	9:40 AM
	NASA Headquarters Exoplanet Exploration Program Focus on interdisciplinary opportunities	Hannah Jang-Condell & John Wisniewski (ExEP, NASA HQ)	9:40 AM	0:20	10:00 AM
	Exoplanet Exploration Program (ExEP) Office	Dawn Gelino (ExEPO, JPL/Caltech)	10:00 AM	0:15	10:15 AM
	ExEP Science w focus on Science Gap List to search for life on extrasolar planets	Eric Mamajek (ExEPO, JPL/Caltech)	10:15 AM	0:20	10:35 AM
	BREAK (20 min)		10:35 AM	0:20	10:55 AM
	SIG3- Exoplanet / Solar System Synergies	Vikki Meadows (ExoPAG SIG 3 co-chair, U. Washington)	10:55 AM	0:20	11:15 AM
	VEXAG: the potential for past habitability on Venus and science gaps	Noam Izenberg (VEXAG chair, APL)	11:15 AM	0:20	11:35 AM
	MEPAG Mars Exploration Analysis group: searching for life on Mars - science gaps	Victoria Hamilton (MEPAG chair, SWRI)	11:35 AM	0:20	11:55 AM

Session 2 (Chair: Sarah Peacock)		Speaker	Time (EDT)	Duration	End
	NExSS overview and WGs focusing on the search for life beyond Earth	Ofer Cohen (NExSS co-lead, UMass Lowell)	1:55 PM	0:30	2:25 PM
	Cross AG IDEA working group	Jessica Noviello (UMBC)	2:25 PM	0:20	2:45 PM
	OPAG goals in relation to habitability in the outer Solar System	Morgan Cable (OPAG Steering Committee, JPL/Caltech)	2:45 PM	0:20	3:05 PM
	Cross-AG Ocean Worlds Working Group (OWWG)	Cynthia Phillips (JPL/Caltech) and Michael Bland (USGS, Astrogeology Science Center)	3:05 PM	0:20	3:25 PM
	The search for Life in the Solar System	Lori Glaze (Director, Planetary Science Division, NASA HQ)	3:25 PM	0:30	3:55 PM

Lightning Talks

Ziyu Huang, Boston University Post Doctoral
 Anna Ulses, University of Washington Grad Student
 Finnegan Keller, Brown University Undergrad
 Garrett Levine, Yale University Grad Student
 Eleonora Alei, NPP Fellow, NASA GSFC, Post Doc
 Miles Currie, University of Washington Grad
 Laura Chin, Boston University Grad Student
 Shang-Min Tsai, UC Riverside Post Doc

ExoPAG 30: agenda

<https://exoplanets.nasa.gov/exep/exopag/exopag30/exopag30-overview/>

Two Sessions with talks from different analysis groups. Each session is followed by Interdisciplinary Exchange time. **Talk by Dr. Lori Glaze** (Director, Planetary Science Division). **Lightning talks**

The ExoPAG Executive Committee and its Members

The Executive Committee organizes community input, oversees ExoPAG analyses, and reports ExoPAG findings and inputs to the Astrophysics Division Director



I. Pascucci



T. Beatty, U.
Wisconsin-Madison



I. Crossfield



C. Dong, Boston U.



D. Dragomir



K. Follette



J. Girard, STScI



S. Johnson



E. May



B. Mennesson



S. Peacock, Goddard



M. Rice



L. Zhao

Thanks to former EC members M. Bottom, O. Cohen, K. Colon, and N. Hinkel for their service!

ExoPAG Actions requested from APAC

The ExoPAG requests APAC to discuss NASA's decision on zero-proprietary period