# Exoplanet Explorers (ExoExplorers) Program

Tiffany Kataria
Jet Propulsion Laboratory, California Institute of Technology
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# Motivation and Inception

- ***Visibility***: The COVID-19 pandemic has limited opportunities for early career scientists to promote their work and interface with the larger community. Aim to create an internal and external network for early career scientists.
- ***Inclusion***: We want to amplify early career scientists, especially those in underserved/underrepresented communities
  - **Inclusion is one of NASA's core values**
- ***Science***: Use the framework of the ExEP Science Gap List to serve as a touchstone for science talks.


***Program serves broader exoplanet community, enabled by support from ExEP and ExoPAG***

# Motivation and Inception

- **Main goal throughout:** Design an inclusive program where a cohort of early career scientists can build their internal and external networks, amplify their science, and grow professionally
- **Core team:**
  - *Steering Committee (SC)* – consists of current/former members of the ExoPAG EC that shape selection criteria, evaluate the ExoExplorer applications and make recommendations for selection
  - *Organizing Committee (OC)* – coordinates logistics (WebEx meetings, surveys, emails, etc)
- **Careful discussions about recruitment, advertising and evaluation**
  - Aim for broad recruitment and advertisement
  - Include applicants not only in pure research, but also developing technology that enables science
  - Ensure call for applications traces well to selection criteria/rubric
    - Applications were evaluated on three criteria: science, DEIA experience / leadership potential, and cohort participation ideas
    - Call linked here: https://exoplanets.nasa.gov/exep/exopag/exoexplorers/exoexplorers-call/
  - All cohort applicants can schedule a 30-min debrief on their application upon request

# ExoExplorers Steering Committee and Organizing Committee

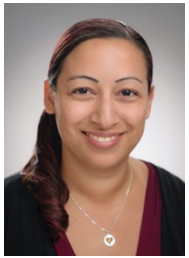
## Steering Committee (SC)

Tiffany Kataria (Chair, JPL)

Jessie Christiansen (Caltech/IPAC)

Natasha Batalha (NASA ARC)

Knicole Colon (GSFC)



## Organizing Committee (OC)

Vanessa Bailey (Chair, JPL)

Jennifer Burt (JPL)

Marie Ygouf (JPL)

Robert Zellem (JPL)

Raissa Estrela (JPL)

# Development and early timeline

- SC/OC have met weekly since **July 2020** to formulate and execute this program, each of us bringing our own unique perspectives and experiences
- **Oct 5, 2020**: First call for Applications released
- **Dec 17, 2020**: First cohort notified of selection
- **Jan 11, 2021**: First cohort meet and greet

Because we were fully virtual, we were able to **formulate and execute the program within 6 months**, and have gone global for year 2. Such agility could only have happened within a virtual environment

# ExoExplorers Program is responsive to Astro2020 Decadal recommendations

- Recommendation: NSF, NASA, and DOE should implement undergraduate and graduate “traineeship” funding, akin to the NIH MARC and NIH “T” training grant programs, to incentivize department/institution-level commitment to professional workforce development, and prioritize interdisciplinary training, diversity, and preparation for a variety of career outcomes.
- Recommendation: The astronomy community should increase the use of remote observing, hybrid conferences, and remote conferences, to decrease travel impact on carbon emissions and climate change.
- Recommendation: NASA, NSF, and DOE should reinvest in professional workforce diversity programs at the division/directorate levels with purview over astronomy and astrophysics. Because academic pipeline transitions are loss points in general, supporting the creation and continued operation of “bridge” type programs across junctures in the higher-education pipeline and into the professional ranks appear especially promising.

# Components of ExoExplorers Program

1. Speaker Series
2. Professional Development Activities
3. Building an Internal Network

# 1. Speaker Series

- **ExoExplorer talks**: Feb-Jun 2022
  - Monthly science talks delivered by two cohort members (two half-hour talks)
  - Science talks inspired by topics in the ExEP Science Gap List
- **1-1 meetings with prominent scientists of their choosing**
  - ExoExplorers send ~5 names people they'd like to virtually meet with, which OC coordinates
- **ExoGuide talks**: Jan-April 2022
  - ExoGuides: Prominent exoplanet scientists
  - Deliver talks directly to cohort followed by a closed door discussion

All talks posted to webpage:
https://exoplanets.nasa.gov/exep/exopag/exoexplorers/exoexplorers-presentations/

# 2022 ExoExplorers cohort

Meet the ExoExplorers: https://exoplanets.nasa.gov/exep/exopag/exoexplorers/exoexplorers/

Munazza Alam (Carnegie EPL)

Aida Behmard (Caltech)

Kiersten Boley (OSU)

Aarynn Carter (UCSC)

Quadry Chance (Univ. of Florida)

Matthew Clement (Carnegie EPL)

Leonardo dos Santos (STScI)

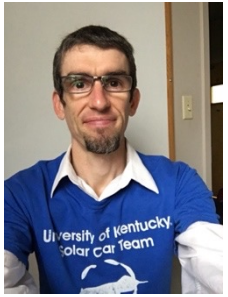
Alison Farrish (GSFC)

Briley Lewis (UCLA)

Romy Rodriguez (OSU)

Julia Seidel (ESO/Chile)

Eckhart Spalding (Notre Dame)



# 2022 ExoGuides

ExoGuides: Prominent exoplanet scientists that engage with cohort

Meet the ExoGuides: https://exoplanets.nasa.gov/exep/exopag/exoexplorers/exoexplorers-exoguides/

José Caballero (Spanish Centro de Astrobiología)

Bruce Macintosh (Stanford University)

Elisa Quintana (NASA GSFC)

Sarah Rugheimer (Oxford University)

# Updates between 2021 and 2022 cohorts

- Expanding program to international ExoExplorers and ExoGuides
  - As a result, expanding cohort to maximum 12 participants
  - **2022 ExoExplorer applicants**: 65 total applications, 12 selected (1 international)
  - **2022 ExoGuide applicants**: 10 applications, 4 selected (1 international)
- Debrief with 2021 cohort yielded important lessons learned
  - More back and forth engagement between cohort/core team and cohort/ExoGuides
    - We should be learning from them as much as they are learning from us
  - Eventually adding in-person, live component

# 2. Professional Development

- **Professional development workshops based on topics prioritized by the cohort**
- **2021 Selected workshops**
  - Building Inclusive Collaborations (May 2021), Stefanie Johnson (CU Boulder)
  - Proposal Writing workshop (June 2021), Christina Richey (JPL)
- **2022 Selected workshops**
  - Building inclusive collaborations
  - Being an effective leader of a team
  - How to balance DEI work vs building an academic career – future roundtable discussion
  - Job applications/career paths – converted to panel discussion
- **Panels and Meet and Greets**
  - Meet-and-Greet with NASA HQ program officers Doug Hudgins and Hannah Jang-Condell (May 2021)
  - Panel on Astro2020, including State of the Profession (May 2022), planning underway
  - Panel on career paths (June 2022), planning underway

Stefanie Johnson (CU Boulder)

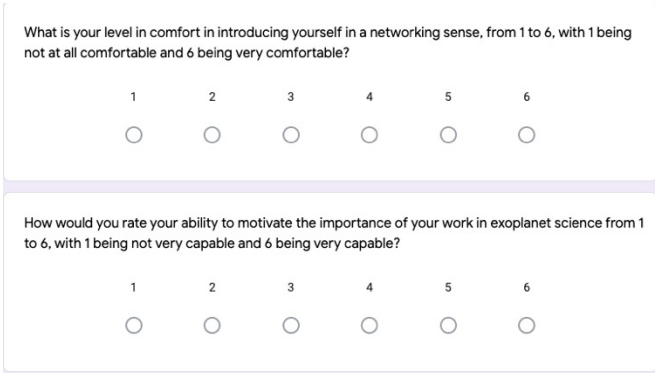
Christina Richey (JPL)

# 3. Building an Internal Network

- Slack workspace for regular interaction
- Regular social hours for the cohort (*without* the organizers!)
- OC/SC/ExEP offers support for offshoot activities
  - 2021 Cohort will be independently organizing a AAS Special Session entitled “The ExoExplorers: Early-Career Perspectives on the Intersection of Exoplanet Science and DEI in Astronomy” to be submitted for January 2023 AAS meeting in Seattle, WA

# Soliciting feedback and evaluating success: Internal

- We send each ExoExplorer two anonymous surveys
  - **At the beginning of program**: Conduct self assessment, solicit their goals, poll their interests for professional development
  - **At the end of the program**: Allow them to re-evaluate and provide feedback on program activities
- Ensure there are avenues for **anonymous** feedback via this Google form: https://forms.gle/DQ3er5bZnaPYhRhz8
- Provide email list (exoexplorers_questions@jpl.nasa.gov) that reaches all organizers



# Feedback from 2021 cohort

- Closing survey of 2021 cohort was positive overall in providing visibility and connections", network and resources (especially in terms of working towards DEI), providing a support system
- The cohort made great suggestions on what we should include in future cohorts
  - Meetings with DEI-decision makers at NASA
    - Would love to work with APAC and NASA HQ to make this happen!
  - In-person events
    - That will happen! Informal meet-and-greet at Exoplanets IV ?
  - More science talks
    - We've since encouraged our ExoGuides to focus talks on their science
  - Guest lecturers that talk about advancements in the exoplanets field
    - We're working on this!
  - A "state-of-the-field" discussion  (technology and career paths)
    - We're convening one this year!

# Soliciting feedback and evaluating program success: Within broader astrophysics community

- Monitor attendees and engagement for each ExoExplorers talk
  - Healthy attendance (50-100 people) for each set of talks
  - NExScI tweet tracking (ex: 2021)
    - 8,000-50,000 Impressions (Total # of times tweets were displayed/delivered in timeline or search result)
    - 50-500 Total Engagements (media engagements, detail expands, likes, retweets, link clicks, profile clicks)
- Anonymous feedback form and email list also serve as external forms of contact
- 2021 Cohort suggested more advertising
  - We welcome any input on how to reach broader communities!

# 2022 ExoExplorers Talk Schedule

**Next ExoExplorers 2022 talks:** April 15, 2022 at 11am PDT/2pm EDT


Other ExoExplorer talk dates: **3rd Friday of each month at 11am PT/2pm ET**:

- **May 20th**: Alison Farrish and Kiersten Boley
- **June 17th**: Aarynn Carter and Aida Behmard

# Key Takeaways and Future Outlook

- **The ExoExplorers Program created an opportunity for early career scientist engagement at a time when those opportunities were limited**
  - Something positive to come out of the pandemic: A virtual environment rapidly enabled a nationwide program to support early career scientists
- First cohort completed; second cohort underway
- **Goals for third cohort** (and beyond!):
  - Ensure annual program (Jan-June timeline)
  - Continue to engage international communities
    - ~10 people appears to be ideal size for the cohort; scaling beyond that will likely prove non-trivial
  - Add in-person, live component
  - Expansion to other astrophysics disciplines? Important to initiate from PAGs

# Thank you

- Thank you to the APAC for your invitation and attention
- Thank you to ExEP, ExoPAG, and NASA HQ for continued support
- Thanks to the SC, OC and JPL and ExEP business teams for their hard work for another exciting year

**Sign up for ExoExplorers announcements here:**
https://exoplanets.nasa.gov/exep/exopag/exoexplorers/exoexplorers-announcements/

# Thank you to the ExoExplorers past and present!

https://exoplanets.nasa.gov/exep/exopag/exoexplorers/exoexplorers-2021/


**Jet Propulsion Laboratory**
California Institute of Technology

jpl.nasa.gov