National Aeronautics and Space Administration

Cosmic Origins Program Analysis Group (COPAG) Report to Astrophysics Advisory Committee (APAC) October 19, 2023

Dr. Shouleh Nikzad
Chair, COPAG Executive Committee
COPAG UVSTIG Leadership Member
On behalf of COPAG EC

COPAG EC Overview
- Charge and Organization
- Membership & Staffing; SIG/STIG Structure

Activities
- Community Engagement and Cross PAG activities ongoing and in planning:
  - AAS splinter discussion planning, Cross PAGs, Join PAGs Chair meeting
  - Planning Town Hall with community
  - Science Gap and precursor Activities
- SIG and STIG Activities
- UV Working Group Objective and Activities Update
- Strategic Plan development for the next two years and beyond

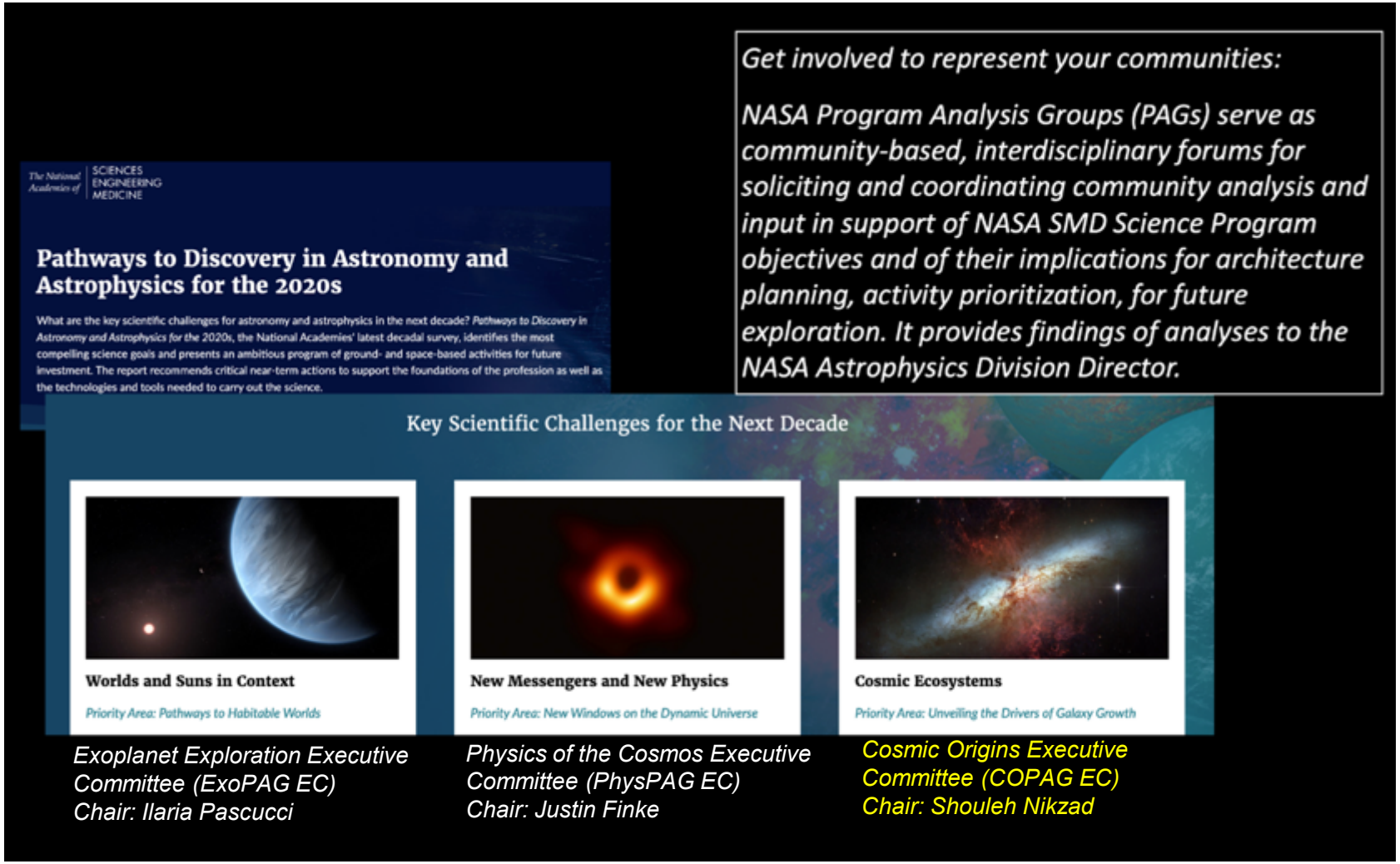
COSMIC ORIGINS EXECUTIVE COMMITTEE: Review of charge and organization

COPAG EC lead analysis and coordinate PAG activities; members should span breadth of COR science, technology

Program Support Manager: Stephanie Clark

COR Chief Scientist: Peter Kurczynski
COR Deputy CS: Swara Ravindranath

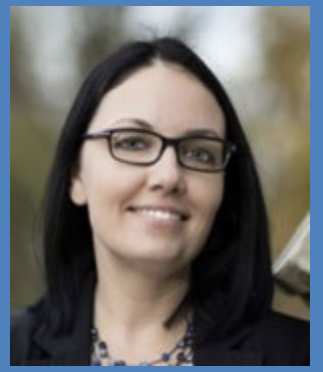
Program Scientist: Manuel Bautista



COSMIC ORIGINS EXECUTIVE COMMITTEE:
Review of charge and organization

Member	Term	Institution
Shouleh Nikzad, Chair	April 2022-October 2024	Jet Propulsion Laboratory
Stephan McCandliss	November 2018-October 2024	Johns Hopkins University
Christine Chen	November 2020-January 2024	Space Telescope Science Institute
Chris Hayward	November 2020-January 2024	Flatiron Institute
Sabrina Stierwalt, Vice Chair	November 2020-January 2024	Occidental College
Hsiao-Wen Chen	April 2022-October 2024	University of Chicago
Enrique Lopez Rodiguez	April 2022-October 2024	Stanford University
Rachal Beaton	January 2023-October 2025	Space Telescope Science Institute
Sanchayeeta Borthakur	January 2023-October 2025	Arizona State University

Sabrina, Vice Chair



Christine

Chris

Nov' 20 - Jan '24

Shouleh, Chair

Steve

Hsiao-Wen

Enrique

Apr' 22 - Oct '24

Rachal

Sanch

Jan' 23 - Oct '25

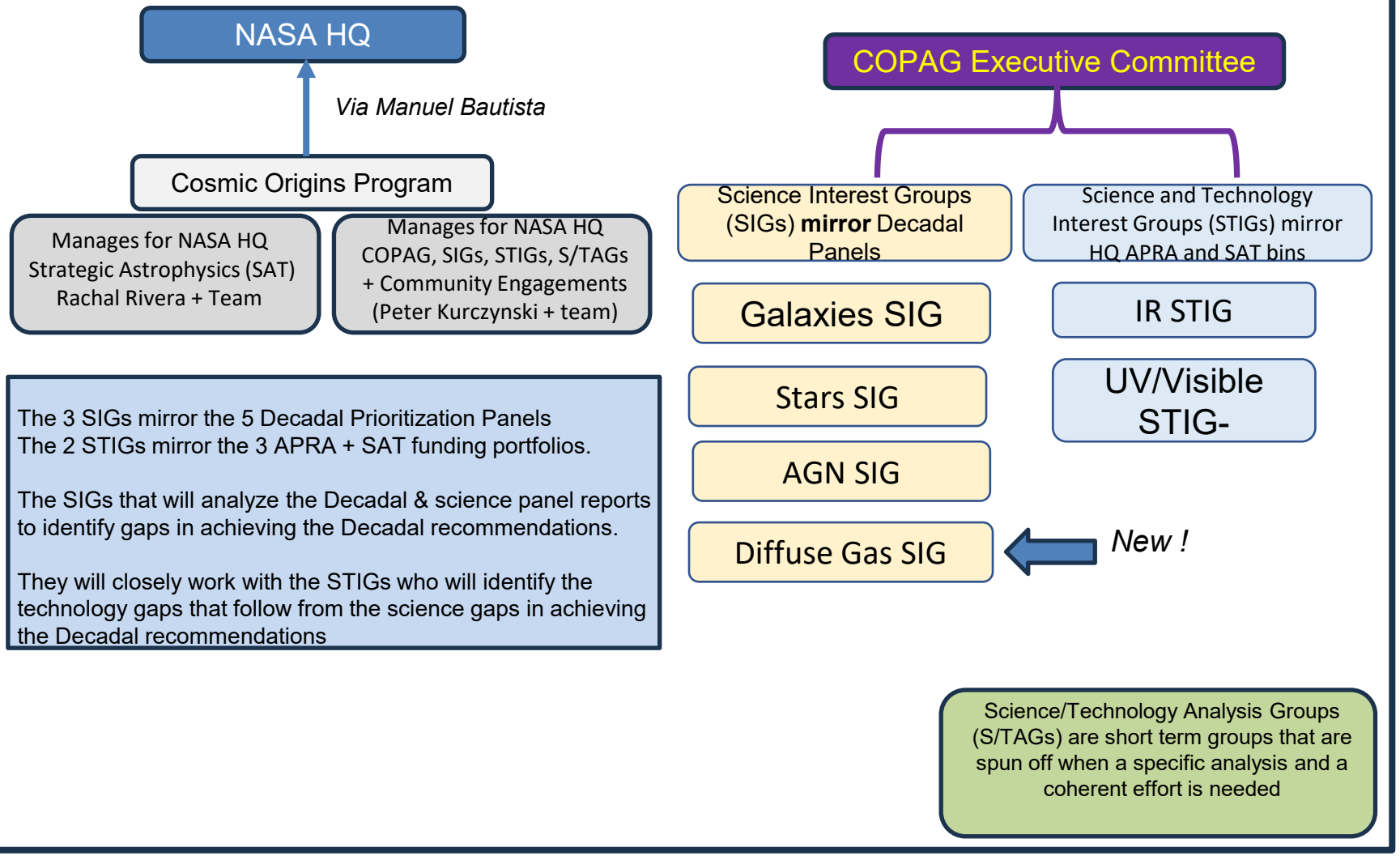
IR and UV STIGS: active since 2000s; established networks and participation

SIGs formed to prepare for analysis of Astro2020

- Stars SIG, active
- Galaxies, active
- AGN, active

New SIG proposed and formed

- Diffuse Gas in Cosmic Ecosystems, active



COSMIC ORIGINS EXECUTIVE COMMITTEE
Review of charge and organization

Galaxies SIG

New !

Diffuse Gas in Cosmic Ecosystem SIG

Hsiao-Wen

Erika

IR STIG

UV/Visible STIG

AGN SIG

Stars SIG

Community Engagement Activities in various stages of planning

2024 Winter AAS

- Splinter sessions planned
- Joint PAG participation—Proposed a new format to/with other PAG Chairs to potentially to have more community engagement
  - Cross PAG SIGs short presentations
  - Panel with APD Director and PAG EC Chairs
  - Open Q&A
- Making booths even more engaging for the community-Planning on interactive demonstration (monitor with skymap) at the AAS to increase engagement with attendees.

Community Townhall

- Floated the idea of a virtual Town Hall to share information with and hear from the community
- Sabrina and Shouleh to plan the Town Hall along with EC members

Workshops

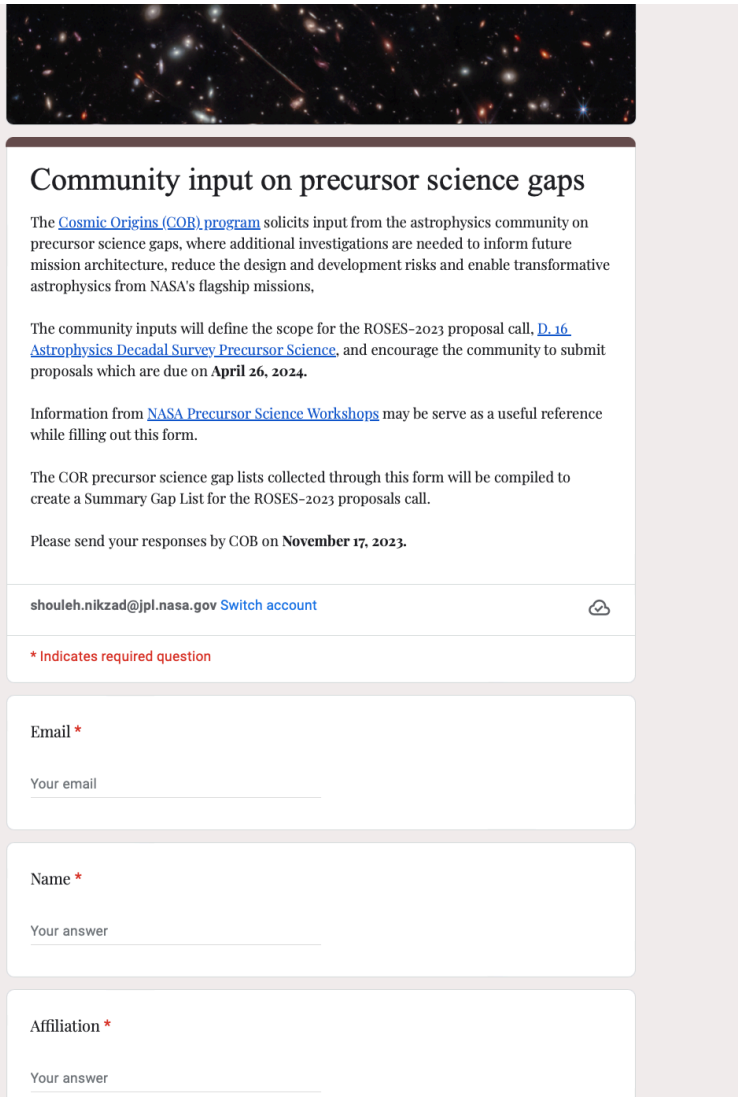
Working on a series of Cross PAG Workshop toward working with astrophysics community toward HWO

Precursor Science: Soliciting Community Input

- Began COR Science Gap activities in Stars and Galaxies SIGs splinters at the AAS January 2023
- Activities continued within COPAG EC and SIG leads at the Pasadena May mini Workshop
- Program office created form for community input on precursor science gaps

  https://tinyurl.com/COR-science-gaps

- COR CS (Peter) and DSC (Swara) attending SIG meetings to solicit input



Community input on precursor science gaps

The Cosmic Origins (COR) program solicits input from the astrophysics community on precursor science gaps, where additional investigations are needed to inform future mission architecture, reduce the design and development risks and enable transformative astrophysics from NASA's flagship missions,

The community inputs will define the scope for the ROSES-2023 proposal call, D. 16 Astrophysics Decadal Survey Precursor Science, and encourage the community to submit proposals which are due on **April 26, 2024.**

Information from NASA Precursor Science Workshops may be serve as a useful reference while filling out this form.

The COR precursor science gap lists collected through this form will be compiled to create a Summary Gap List for the ROSES-2023 proposals call.

Please send your responses by COB on **November 17, 2023.**

shouleh.nikzad@jpl.nasa.gov Switch account

* Indicates required question

Email *

Your email

Name *

Your answer

Affiliation *

Your answer

IRSTIG - Fall 2023 Update

- **2023 Activities**
- Restarted the webinar series in October 2023
  - Continuing to pair science and technology talks
  - Recordings and connection information available on our website: https://cor.gsfc.nasa.gov/sigs/irsig/events/irsig_seminars.php
- New leadership taking over this fall
  - Jake Connors will continue as Co-Chair and Roberta Paladini will replace Meredith MacGregor
  - Still soliciting new members for the broader leadership council

- **2024 Plans**
- Planning another splinter session for the winter AAS meeting
- Will release a new edition of the newsletter in time for AAS in January 2024 - We're always looking for new contributions!
- Considering an additional workshop after FIR probe proposals are submitted and/or selections are made

- *Contacts: Jake Connors (jake.connors@nasa.gov) and Roberta Paladini (paladini@ipac.caltech.edu)*

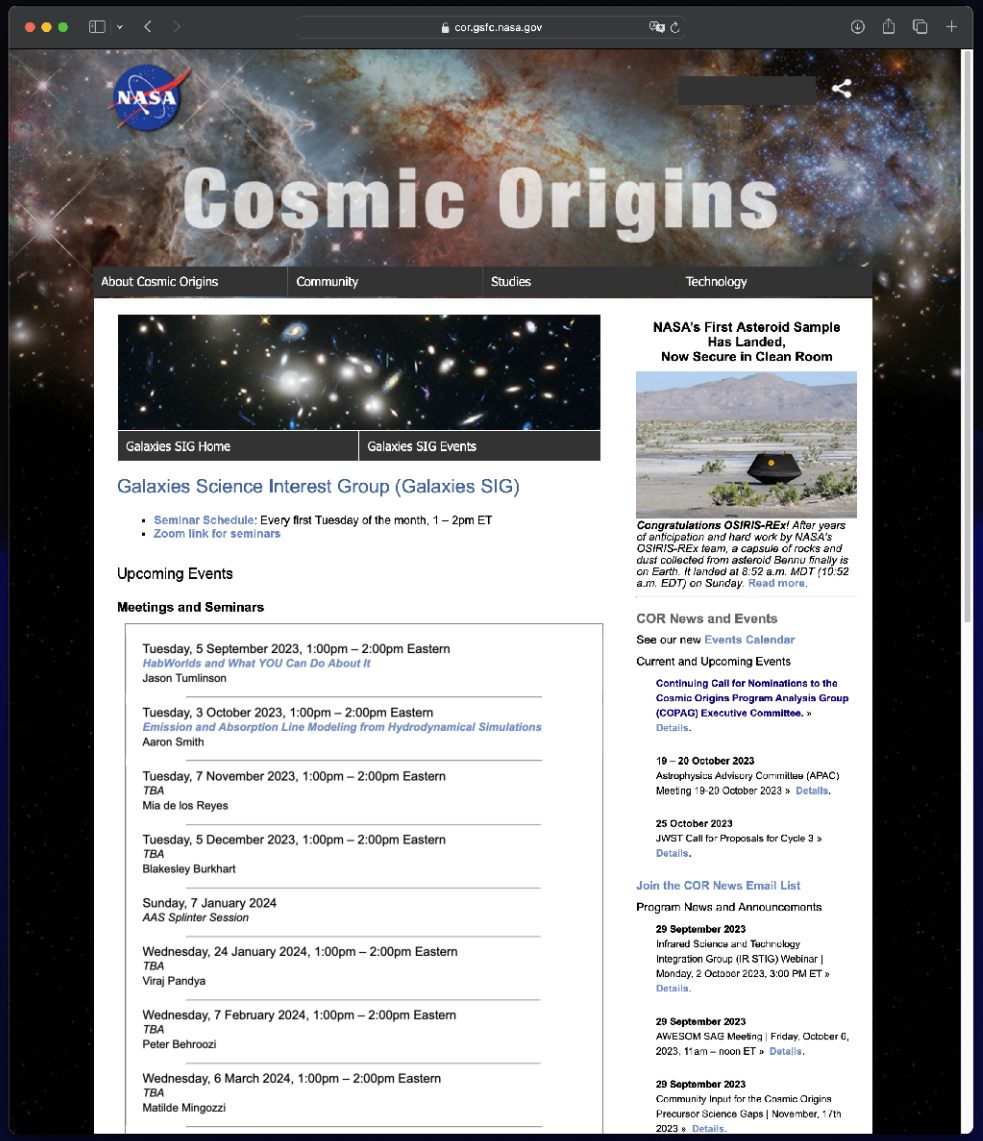
UVSTIG - Fall 2023 Update

- **Summer Events:**
  - **Science with the Habitable Worlds Observatory and Beyond** 10 – 13 July 2023 -- program at https://www.stsci.edu/contents/events/stsci/2023/july/science-with-the-habitable-worlds-observatory-and-beyond
    - 124 in person, 103 virtual attendees
    - 51 Science Presentations – https://www.youtube.com/playlist?list=PLaMFBSsW8QxDf59OUy5wK7lmB7PWwdb2m
  - **Habitable Worlds Observatory Tech Day** 14 July 2023
    - 56 in-person, 42 V
    - 12 Tech Presentations - https://www.youtube.com/playlist?list=PL_dmnk6FeUeDTAACMq0eb9v2BZ_QtFI_T
  - Spun up working group on **UV Science Driven Technology White Paper, lead by Professor Sarah Tuttle (UW)**
  - Attended **Starlight Suppression for HWO Workshop** 8 – 10 August to assess compatibility of UV tech with Coronagraph tech
  - **SPIE San Diego** 20 – 24 August was a forum to further explore far UV and coronagraph compatibility issues.
- **UVSTIG Planning Activities:**
  - Convened Leadership Council to plan for QUEST Seminars for fall 2023 – spring 2024
  - Suggested topics: **UV Coronagraph**; **FarUV Mirror and Filter Variants**; **Multiobject and Integral Field Spectroscopy**; **Contamination Control**; **Photocounting Detectors – Photoemissive, Photoconductive, Photothermal**; **Diffraction Gratings**
  - **UVSTIG Splinter Session Winter AAS243** in partnership with **Mind the Gap Community** Tuesday 09 January 2023 09:30-15:30
- **Upcoming QUEST* Seminar** 20 October 2023 – **Photothermal UV detectors**
  - **Ben Mazin** (UCSB) – **MKID**s (Microwave Kinetic Induction Devices)
  - **Adam McCaughan** (NIST), **Boris Korzh** (JPL) – **SNSPD**s (Superconducting Nanowire Single Photon Detector)
    - *QUEST seminars archive https://www.youtube.com/playlist?list=PL_dmnk6FeUeASWgZwzBIUR--Ut8axxSut

Galaxies SIG - Fall 2023 Update

Galaxies Science Interest Group

- Starting in September, the Galaxies SIG hosts a monthly seminar for the community to shared exciting research and scientific discoveries, especially related to the highly-anticipated HWO and other Great Observatories.
- Invited speakers are extremely enthusiastic about our venue and filled the talk schedule for the coming year within a week. Additional special seminars are added to accommodate excited speakers with timely new results with JWST.
- Talk recordings are made available on the SIG's events page and a YouTube playlist.
- Chair: Benne Holwerda
  Deputy Chair: L. Y. Aaron Yung

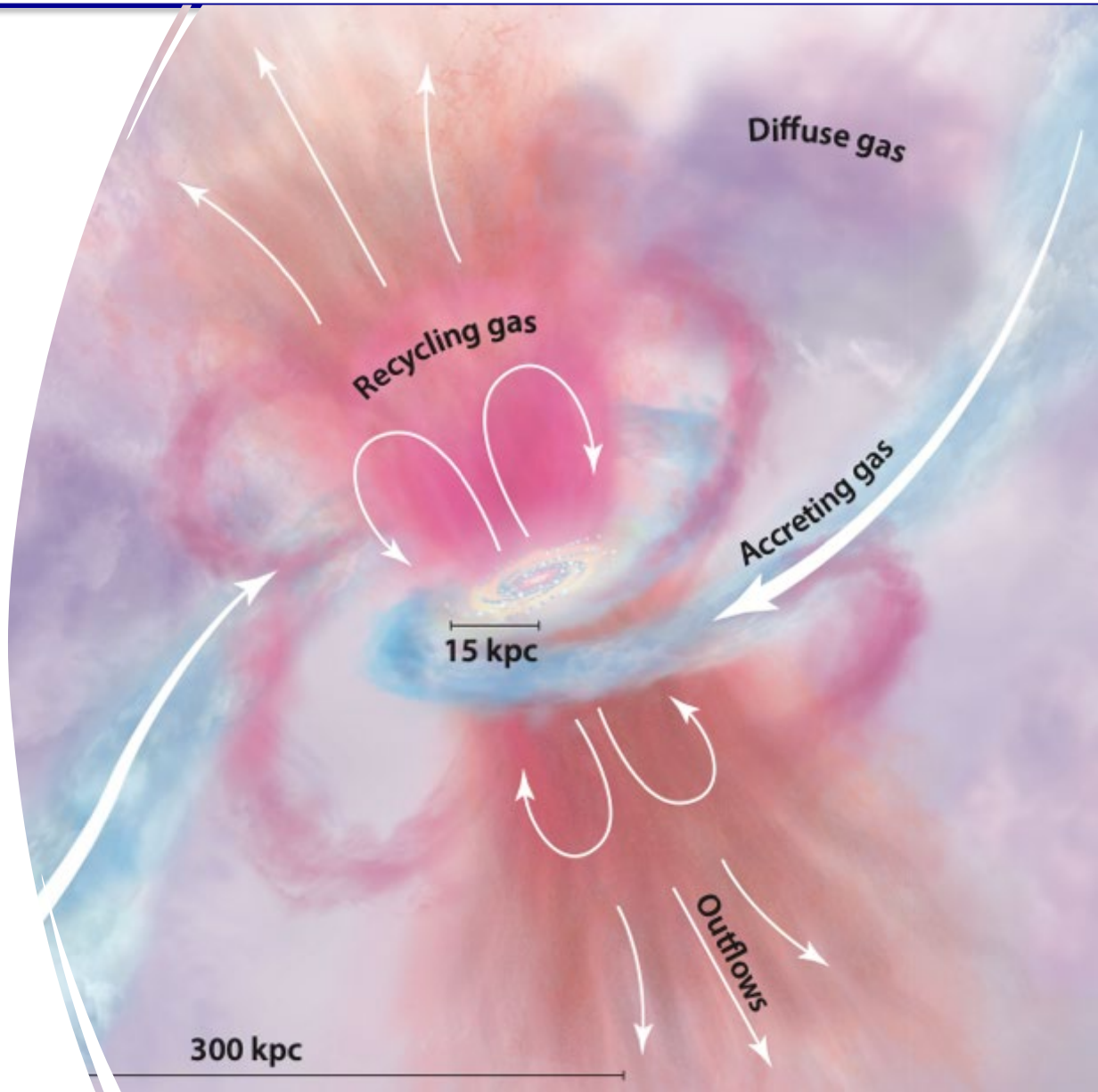


DGCE SIG Fall 2023 Update

Diffuse Gas in Cosmic Ecosystems (DGCE) Science Interest Group

New Science Interest Group: Highlights (Hamden et al.)

- DGCE SIG Talks continue each month and are well attended. In addition, the recordings are regularly viewed.
- Talks are scheduled every month through November, additional talks will be scheduled for 2024.
- SIG is holding a splinter session at the AAS in January 2024.



Contacts:
Erika Hamden hamden@arizona.edu and
Hsiao-Wen Chen hchen@astro.uchicago.edu

Image: Tumlinson, Peeples, Werk, 2017, ARAA 55:389

UV Working Group: Technology White Paper

Co-Chairs: Sarah Tuttle (UW, Seattle) & Mark Matsamura (GSFC)

Goal: Create a foundational document to capture UV driving science, current status of UV technology crucial to HWO development, and specifiy areas needed to focus development to reach notional requirements. Capture key technical advancements in one location to encourage broad engagement in pathfinding missions

- Working Group initiated in July
  - 33 members (including co-chairs, as well as Swara & Peter)
  - 11 universities represented, as well as JPL & GSFC, and Industry participants
  - Broad career stages (grads, postdocs, and researcher levels)
  - Weekly telecons
  - Draft white paper under review for circulation
- Meeting Participation
  - July Science w/HWO Meeting at STSci – multiple presentations & Tech Day Participation
  - Presentation at CGM meeting in September
- Upcoming
  - White paper will be shared throughout NASA leadership
  - White paper will post to arXiv/Astro-ph
  - Multiple presentations at AAS including supporting Mind the Gap/UVSTIG splinter session to share broadly with the community – across technology/science interests, and engaging early career researchers.

COPAG Strategic Plan

Introduction

The Cosmic Origins Program Analysis Group (COPAG) undertook a thorough strategic planning process during Spring 2023. The process was kicked off with a 2-day meeting on May 11 and 12 at the Keck Center Think Tank.

This report is the culmination of this extensive process. This strategic plan will guide COPAG over the next five years and beyond as we transform into a more focused, responsive, and collaborative organization.

Our commitment to community and our desire to serve that community with the highest level of engagement and inclusion will be strengthened by the implementation of this far-reaching plan.

Our executive committee will use this strategic plan as a road map into the future, guiding our analysis, processes, and interactions with the community and NASA. The COPAG-EC will measure progress towards the established goals of this plan periodically in order to ensure our vision is kept on target.

The COPAG-EC and leaders of the COPAG-affiliated Science Interest Groups have a great deal of enthusiasm for this strategic plan. Its implementation will only ensure the successful future and effectiveness of COPAG to serve the astrophysics community and help NASA uncover mysteries of the Universe and discover our cosmic origins.

Shouleh Nikzad, Ph.D.
EC Chair

Manuel Bautista, Ph.D.
NASA HQ Program Scientist

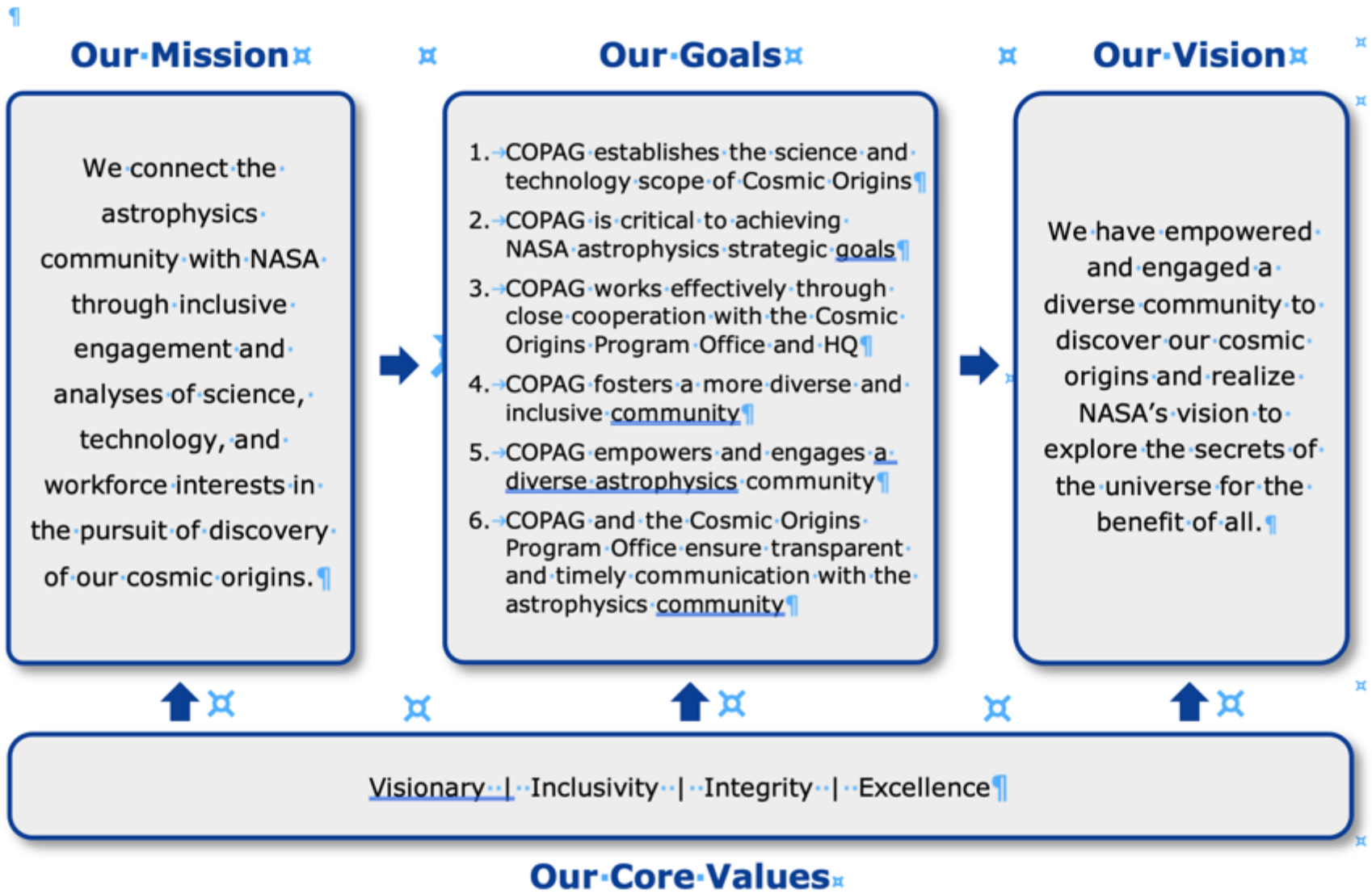
Peter Kurczynski, Ph.D.
Chief Scientist, COR

Sabrina Stierwalt, Ph.D.
Vice-chair, COPAG EC

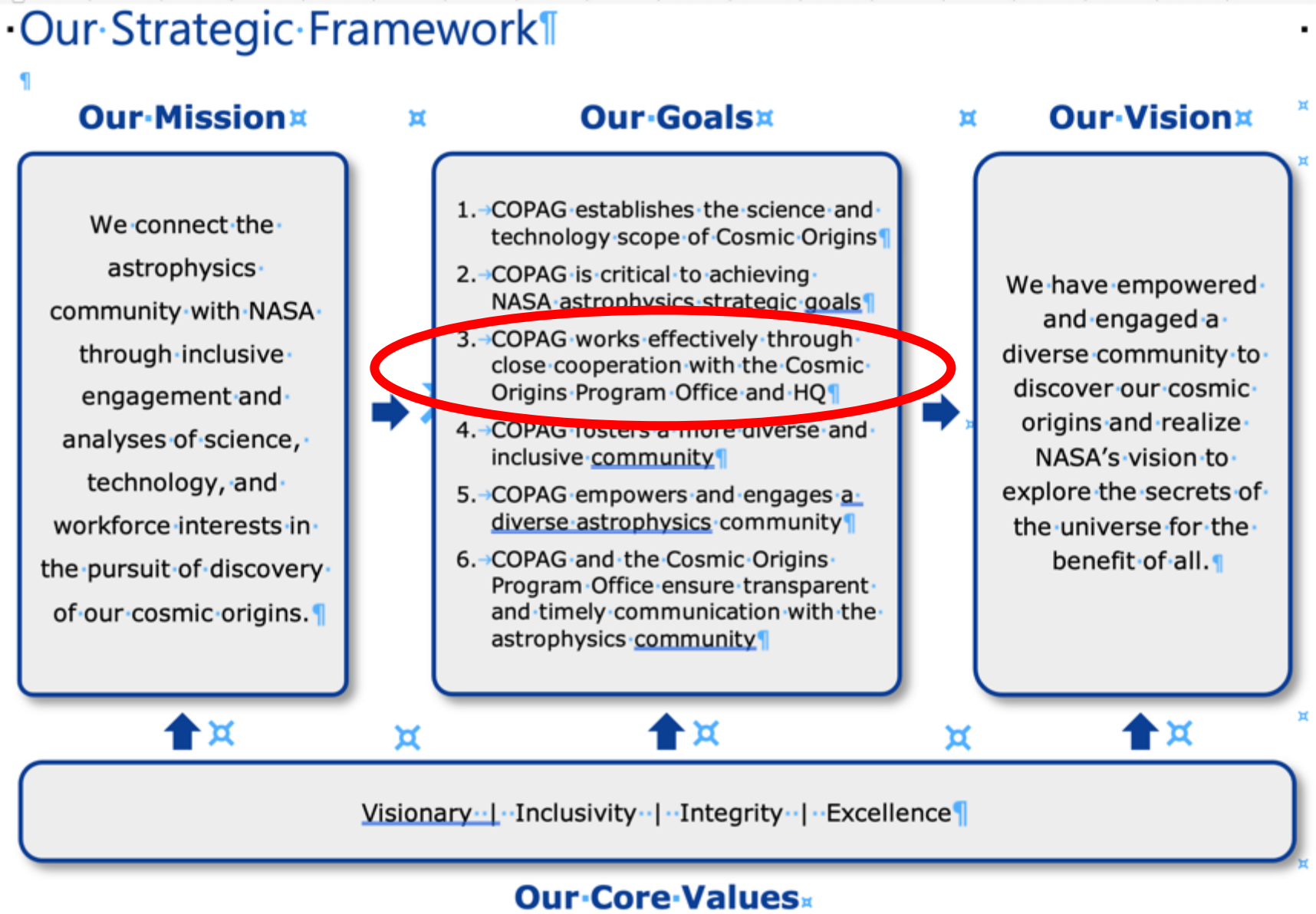
Swara Ravindranath, Ph.D.
Deputy Chief Scientist, COR

Framework

Our Strategic Framework



Sample Strategic Objectives and Assignments



Sample Strategic Objectives and Assignments

Goal 3: COPAG works effectively through close cooperation with the Cosmic Origins Program Office and HQ		
Business Results: Collaboration; clearly defined relationships		
Strategic Objectives	**Target Date**	**Owner**
1. → A clear streamlined **communication structure** between the COPAG, the Program Office, and HQ	Aug 2023	Peter
2. → **Management plan** defining the relationships between COPAG – Program Office – NASA HQ	Aug 2023	Peter
3. → Every COPAG EC members has an **assigned objective** (e.g., strategic plan)	Aug 2023	Sabrina and Shouleh
a. → Onboarding process for new EC members		
b. → Assign new COPAG EC members with individual objectives		
4. → **Engagement plan** for in-person and virtual events with EC and with HQ	Sep 2023	Shouleh
5. → **Operations manual** for COPAG events and presentations and SIG activities (e.g., booths at conferences)	Mar 2024	Peter & Stephanie
a. → Best practices for engaging APAC and HQ		

Questions?