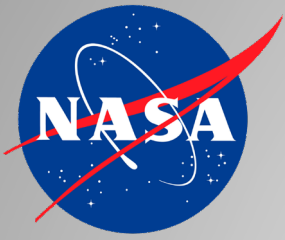


# Updates from the Physics of the Cosmos Program Analysis Group

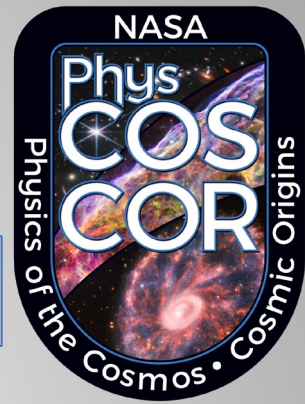
**Dave Pooley (Trinity University)**

*PhysPAG EC Vice Chair*





# PhysPAG Executive Committee



R. O'Brient – JPL  
*IP SIG*

M. Errando - WU SL  
*GR SIG*

B. Grefenstette - Caltech  
*XR SIG*

A. Corsi – TTU  
*GW SIG*

D. Pooley – Trinity U.  
*XR SIG – Vice Chair*

E. Burns – LSU  
*TDAMM SIG*

C-T. Chen -  
USRA  
*XR SIG*

A. Meli – NC A&T  
*CR SIG & Chair*

V. Miranda – Stony Brook  
*CoS SIG*

C. Mingarelli -  
Yale  
*GW SIG*

R. Hounsell - UMBC  
*CoS SIG*

Stephanie Wissel - PSU  
*CR SIG*

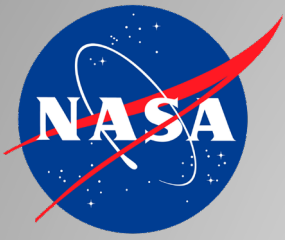
K. Madsen - GSFC  
*XR SIG*

J. Finke - NRL  
*GR SIG & Chair Emeritus*

J. Perkins - GSFC  
*GR SIG*







# Science Interest Groups & Science Analysis Groups

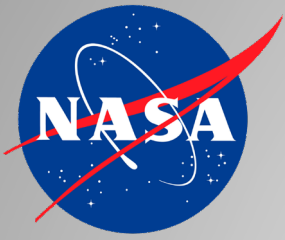


## Science Interest Groups (SIGs)

## Science Analysis Groups (SAGs)

### Cross-

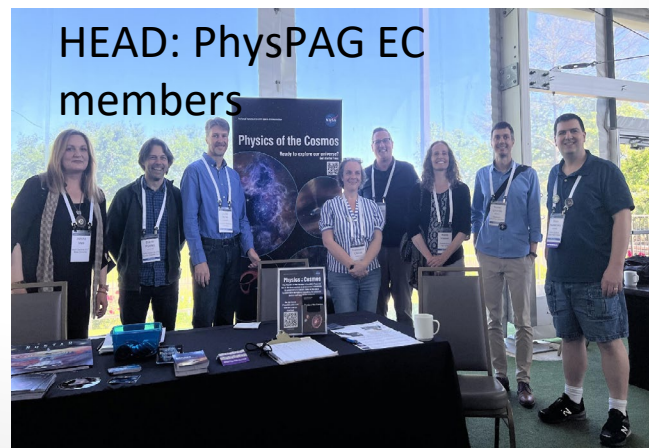




# PhysPAG EC Activities: APS & HEAD meetings



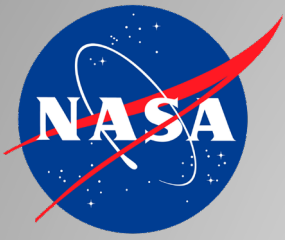
- American Physical Society meeting (April 3-6, 2024):
  - Staffed table with PhysCOS material.
  - Mini-Symposium with 7 presentations (3 presentations focused on CMB science, FIG SAG, GR SIG, GW SIG and a PhysPAG overview).
- American Astronomical Society High Energy Division (HEAD) Meeting (April 8-12, 2024):
  - Staffed Table with PhysCOS material.
  - PhysCOS special session (PhysPAG, PhysCOS overview, START/TAG updates, ACROSS, TDAMM SIG, Fornax).
  - X-ray and Gamma-ray Science Interest Groups splinter sessions.



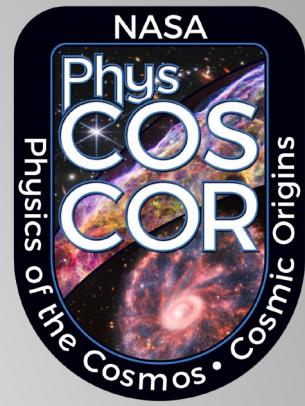
APAC - Nov 2024

Session	Attendees
APS – mini symposium	36
HEAD – PhysPAG	115
HEAD – XR SIG	40
HEAD – GR SIG	50

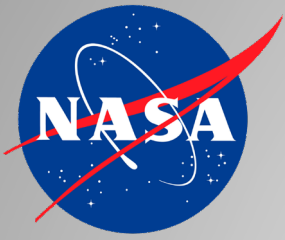




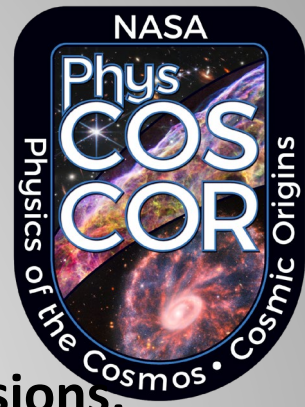
# PhysPAG EC Activities: EC retreat



- PhysPAG EC retreat at GSFC on May 15 & 16, 2024
  - 10 members in person and 2 remote
- Discussion included:
  - Planning for a new PhysPAG Early Career workshop (and PhysPAG participation in Cosmic Pathfinders).
  - Restructure of the SIG leadership to allow the EC members to focus on strategic planning while SIG leads focus on community activity planning.
  - Discussed with Roman Project Scientist how PhysPAG can best support building up the Roman community as they develop their observing plans.



# PhysPAG Early Career workshop



**Save the Date!**  
**NASA's Physics of the Cosmos  
Early Career Workshop**  
Inspiring the next generation of astrophysicists

Join us virtually, November 19-21, 1-4pm EST  
to learn about current NASA science, missions, and how you  
can get involved.

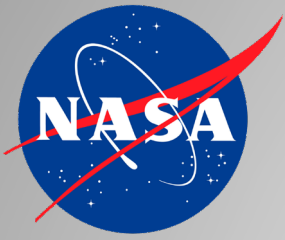
## Workshop Scientific Organizing Committee

- Athina Meli — PhysPAG Executive Committee chair (North Carolina A&T)
- David Pooley — PhysPAG Executive Committee vice chair (Trinity University)
- Francesca Civano (NASA GSFC)
- Brian Humensky (NASA GSFC)
- Bernard Kelly (NASA GSFC)

- 3 PhysCOS themes: **Science, Missions, Career**
- interactive sessions with presentations from the Early Career Scientists on Science and Technology
- Career breakout rooms
- 120 registrants as of 10/31
- Scope: promote the activities, missions, and archives relevant to PhysCOS communities.



link to the  
program



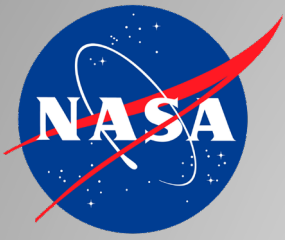
## Workshop Schedule

### Physics of the Cosmos Career Workshop : Agenda

Day	Time	Topic	Speaker
<b>Tuesday</b>	Eastern	<b>PhysCOS SCIENCE</b>	
	1:00 PM	PhysCOS Science overview	F. Civano
	1:15 PM	PhysPAG Overview	D. Pooley
	1:30 PM	Interactive: A tour of the HEASARC, highlighting the tools and services	A. Basu-Zych
	2:00 PM	Break	
	2:10 PM	Proposal opportunities: walk through NSPIRES/Proposal funding options	J. Pepper
	2:30 PM	Early Career Scientists presentations on Science projects	
	3:00 PM	Break	
	3:10 PM	Early Career Scientists presentations on Science projects	
	4:00 PM	End	

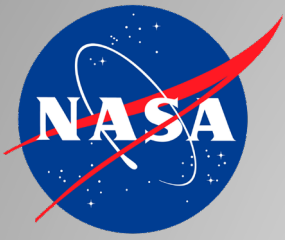
<b>Wednesday</b>		<b>Missions and Technology</b>	
	1:00 PM	NASA Astrophysics Missions Portfolio	V. Connaughton
	1:20 PM	Paths to Plship - BurstCube/TESS	J. Perkins, G. Ricker
	2:00 PM	Break	
	2:10 PM	Technology development for/at NASA	J. Gaskin, M. Errando
	2:50 PM	Break	
	3:00 PM	POEMMA for Radio	J. Eser
	3:20 PM	Early Career Scientists presentations on Technology projects	
	4:00 PM	End	





Thursday		Careers	
	1:00 PM	Personal Career Experience	M. Clampin
	1:30 PM	Personal Career Experience	R. Pfeifle
	1:45 PM	Personal Career Experience	C. Kilbourne
	2:00 PM	Personal Career Experience	L. Lopez
	2:15 PM	Break	
	2:25 PM	Personal Career Experience	R. Petre
	2:40 PM	Personal Career Experience	T. Venters
	2:55 PM	Personal Career Experience	TBC
	3:10 PM	Break	
	3:15 PM	Personal Career Experience	S. Vahidinia
	3:30 PM	Overview of fellowship programs	N. Cucchiara
	3:45 PM	Breakout rooms to discuss careers experience in NASA, R1/nonR1 institution, other labs	
	4:00 PM	End	

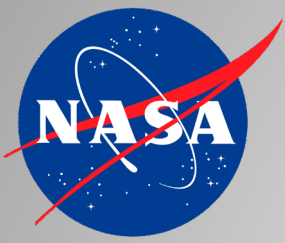




# Gamma-ray SIG Activities



- Co-chairs: Manel Errando, Justin Finke, Jeremy Perkins
- [Webinar on Extragalactic Background Light on 20 September](#)
- [Future in Gamma-rays Science Interest Group](#) (FIG SAG) Meetings
  - Virtual session on Workshop Summary (August 1)
  - Virtual session on Technology and Mission Capabilities (August 22)
  - In-person session at Fermi Symposium (September 13)
  - Focused on answering question: *what science has not or cannot be done with existing or funded space-based gamma-ray instrumentation?*
- Successful community effort to submit technology gaps:
  - 2 new Tier-2 and 7 new Tier-3 technology gaps listed in the [2024 ABTR](#) that support tech developments for future gamma-ray missions.

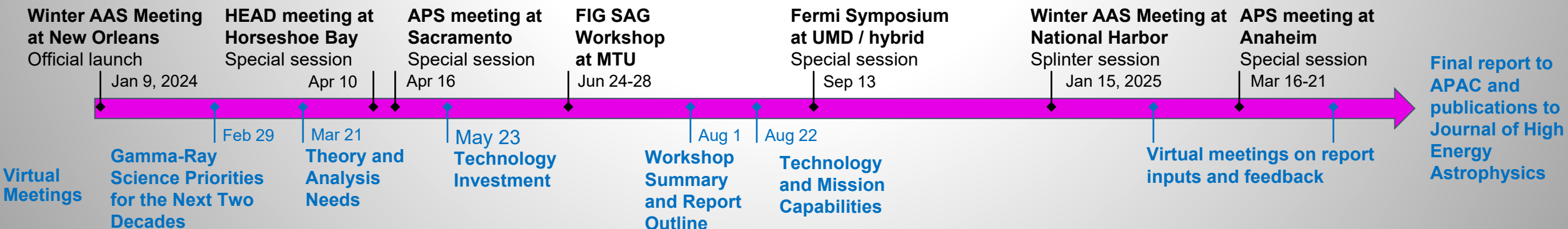


# Future Innovations in Gamma rays Science Analysis Group (FIG SAG)



<https://pcos.gsfc.nasa.gov/sags/figsag.php>

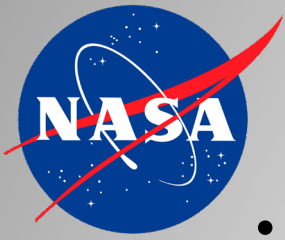
- Goal: identify science drivers, necessary capabilities, and priorities for the future of gamma-ray astronomy.
- Community discussions held in:
  - 4 in-person sessions at major conferences,
  - 5 virtual meetings,
  - 1 week-long in-person workshop in June.
- Upcoming:
  - Winter AAS splinter session to present an early report draft for community review and feedback.
  - Further iterations and community inputs planned in Spring 2025 via virtual meetings and at APS.
  - Final report will also be submitted to the Journal of High Energy Astrophysics for publication.



# TDAMM SIG Updates

- **3rd TDAMM Workshop:** Multidisciplinary Science in the Multimessenger Era: Baton Rouge, LA, September 23-26th 2024 - White paper under development. Delivery Date: To be presented to AAAC in January
- **4<sup>th</sup> TDAMM Workshop:** Community-driven observing plans for rare transients, considering most US facilities. Organized by ACROSS, with NSF involvement
  - To be discussed in the PhysPAG session at AAS 245
  - Preparatory work for draft observing plans organized through TDAMM SIG
- **AAS 245 Joint PAG Talks:** 3<sup>rd</sup> TDAMM workshop
  - 3<sup>rd</sup> TDAMM Workshop White Paper Summary
  - COSI Mission talk, in the context of the 3<sup>rd</sup> TDAMM Workshop White Paper
  - UVEX Mission talk, in the context of the 3<sup>rd</sup> TDAMM Workshop White Paper

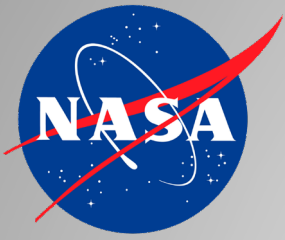




# Cosmic Rays SIG Updates



- **Co-chairs:** Athina Meli, Stephanie Wissel
- We collected and expanded members of the CR Sig list (~140 members).
- Emailed several leaders of relevant collaborations and have extended the invitation to their members to join the email list. We got feedback.
- **Virtual meeting:** Oct 7, Frank G. Schroeder (University of Delaware)  
*"Implications of the Snowmass Whitepaper on Ultra-High-Energy Cosmic Rays on the Science Goals and Design of Future Experiments and Missions"*
- Future plans
  - programmatic overview and discussion sessions on the overall goals of the SIG (future of the field in the next 5-10 years, the next topics in CRs and neutrinos)
  - Determine the goal / mandate of the CR SIG collectively within the different groups
  - Plan the science drivers for Astro2030 - Would there be a probe study to begin relevant for Astro2030?
- **Plan a session at the ICRC 2025 (Geneva)**
- **Co-Chair/EC chair (A. Meli) attended and presented at 2024 HEAD Texas**

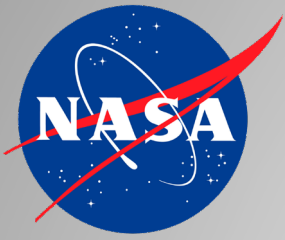


# XR SIG Updates



**Co-chairs:** Kristin Madsen (GSFC), David Pooley (Trinity), Chien-Ting Chen (USRA), Brian Grefenstette (Caltech)

- 21<sup>st</sup> HEAD meeting XRSIG Session:
  - CfA director Lisa Kewley addressed HEAD community in support for Chandra
  - Science talks on REDSoX X-ray polarimeter mission by Sarah Heine and BurstCube hard X-ray/Gamma-ray CubeSat by Michael Briggs
- The XRSIG has reviewed the X-ray Tech Gaps submitted by the community and sent the XRSIG inputs to PhysCOS.
- The XRSIG co-chairs sent out a newsletter to the community with a community survey and solicitations of new XRSIG co-chairs.
- The XRSIG co-chairs have heard concerns from many XRSIG members about (1) the Probe selection process and (2) the reduction in Chandra GO funding by roughly half. We expect these topics to come up during the XRSIG portion of the PhysCOS special session at the 245th AAS Meeting.



# Summary



- Actively engaging with PhysPAG membership at major meetings
- Future Innovations in Gamma Rays (FIG) and AWESOM SAGs work continues
- SIGs are planning upcoming virtual meetings with their membership
- New initiative
  - PhysPAG virtual **Early Career Workshop** Nov 19-21, 2024

[https://pcos.gsfc.nasa.gov/physpag/meetings/EarlyCareerWorkshop\\_Nov2024/EarlyCareerWorkshop.php](https://pcos.gsfc.nasa.gov/physpag/meetings/EarlyCareerWorkshop_Nov2024/EarlyCareerWorkshop.php)