



PCOS Structure

NASA HQ: Provides programmatic direction and overall guidance to the Program and Project Offices; administers the PCOS budget; solicits and manages calls for technology development, and makes strategic decisions on technology support and implementation; works with the PCOS Chief Scientist to identify, develop, and implement PCOS science goals; oversees the science and technology content of the program ensuring it remains faithful to its mission statement.

Program Director: Andrea Razzaghi
Program Executive: Shahid Habib
Program Scientist: Rita Sambruna
Deputy Program Scientist: Daniel Evans

Program Office at GSFC: Reports directly to the Program Director and provides risk-based insight/oversight of the projects during all phases; interfaces with science community; facilitates future mission development; conducts advanced mission concept studies; supports research; identifies and develops enabling technologies; facilitates international partnerships; supports education and public outreach. Interacts on a day-by-day basis with HQ through the Program Executive and Program Scientist.

Program Manager: Mansoor Ahmed
Deputy Program Manager: Tom Griffin
Program Chief Scientist: Ann Hornschemeier
Program Deputy Chief Scientist: Peter Bertone
Program Chief Technologist: Bernard Seery
Technology Development Manager: Thai Pham

Upcoming Events

Einstein Fellows Symposium

Harvard-Smithsonian Center for Astrophysics
October 2015
Cambridge, MA

American Astronomical Society

227th Meeting of the American Astronomical Society
<http://aas.org/meetings/aas227>
January 4–8, 2016
Kissimmee, FL

- Joint PAG meeting with Paul Hertz: 1:00 PM–2:30 PM, Room: Osceola A
- PhysPAG meeting: 3:00 PM–6:30 PM, Room: Naples

High Energy Astrophysics Division
HEAD Fifteenth Divisional Meeting
April 3–7, 2016
Naples, FL

- PCOS Townhall
- GammaSIG Meeting
- XRSIG Meeting

American Physical Society

APS April Meeting 2016
April 16–19, 2016
Salt Lake City, UT

- PCOS Mini-symposium
- IPSIG Special Session
- GWSIG Special Session
- CosmicSIG Special Session

Physics of the Cosmos (PCOS) Program

How does the Universe work?

The Physics of the Cosmos (PCOS) Program addresses questions about the origin and evolution of the Universe, the conditions of matter in extreme environments, and the nature of dark energy and dark matter. PCOS supports a vibrant program in both observational and theoretical research, and technology development for future missions.

The PCOS Program Analysis Group (PhysPAG) provides input to the program and includes all interested members of the community. Visit <http://pcos.gsfc.nasa.gov/> or <http://pcos.gsfc.nasa.gov/physpag/> for more information.



Science Themes:

The Physics of the Cosmos (PCOS) program incorporates cosmology, high-energy astrophysics, and fundamental physics projects aimed at addressing central questions about the nature of complex astrophysical phenomena such as black holes, neutron stars, dark energy, dark matter, and gravitational waves. The ultimate quest is to understand how the Universe works, from the very small to the very large scales.

PCOS maps directly into one of the three Science Objectives identified by the Decadal 2010 report, Physics of the Universe: Understanding Scientific Principles.

PCOS science objectives are to:

- Test the validity of Einstein's Theory of Relativity and investigate the nature of spacetime
- Explore the behavior of matter and energy in its most extreme environments
- Expand our knowledge of dark energy
- Precisely measure the cosmological parameters governing the evolution of the Universe
- Test the inflation hypothesis of the Big Bang
- Uncover the connection between galaxies and supermassive black holes

The Einstein Fellowship

PCOS supports research investigations—theoretical, observational, and instrumental—in science areas closely related to the program themes through Fellowships to early-career scientists—three years or less after the Ph.D. date.

Scientists apply from institutions worldwide to work in U.S.-based institutions. About 10–15 Fellows are peer-selected each year for a Fellowship tenure of three years each.

See <http://cxc.harvard.edu/fellows/> for details.

Einstein Fellowship Program Coordinator: Andrea Prestwich,
Chandra X-ray Center

How to get involved:

- Program Analysis Groups (PAGs) provide analysis findings to NASA via proper channels.
- PAGs include ALL interested scientists and technologists from the broad community. Everyone is invited to participate in the PAGs' yearly meetings and to contribute to the discussion.
- PAGs conduct trade studies via their Science Interest Groups. These are used as guidelines by NASA to plan for future investments. Your input matters to NASA!
- PCOS PAG: PhysPAG pcos.gsfc.nasa.gov/physpag/
Cosmic Origin PAG: COPAG cor.gsfc.nasa.gov/copag/
Exoplanet PAG: ExoPAG exep.jpl.nasa.gov/exopag/

PhysPAG:

Executive Committee

Coordinates the PhysPAG activities; organizes annual meetings; coalesces input from Science Interest Groups (SIGs) to be transmitted to NASA via the NASA Advisory Committee (NAC) Astrophysics subcommittee.

- James Bock (Caltech/JPL) (Chair)
- Mark Bautz (MIT) (Vice Chair)
- Rachel Bean (Cornell)
- Jay Bookbinder (CfA)
- John Conklin (University of Florida)
- Neil Cornish (Montana State University),
John Conklin (Univ. of Florida)
- Olivier Doré (JPL)
- Henric Krawczynski (Washington University, St. Louis)
- Mark McConnell (University of New Hampshire)
- Amber Miller (Columbia)
- John Nousek (Penn State University)
- Angela Olinto (University of Chicago)
- Eun-Suk Seo (University of Maryland)
- Edward Wollack (NASA Goddard Space Flight Center)

PhysPAG Science Interest Groups (SIGs):

Inflation Probe (Leads: Amber Miller, Edward Wollack): Coordinate community activities and preparations for a future cosmic microwave background polarization mission.

Gravitational Waves (Lead: Neil Cornish): Coordinate community activities and preparations for a future gravitational wave mission.

X-rays (Lead: Jay Bookbinder): Coordinate community activities and preparations for a future X-ray astronomy mission.

Gamma Rays (Lead: Mark McConnell): Coordinate community activities and preparations for a future gamma ray astronomy mission.

Cosmic Rays (Lead: Eun-Suk Seo): Coordinate community activities and preparations for a future cosmic ray astronomy mission.

Cosmic Structure (Leads: Rachel Bean and Olivier Doré): Coordinate community activities and preparations for missions related to understanding the nature of dark energy, dark matter and large scale structure of the Universe.