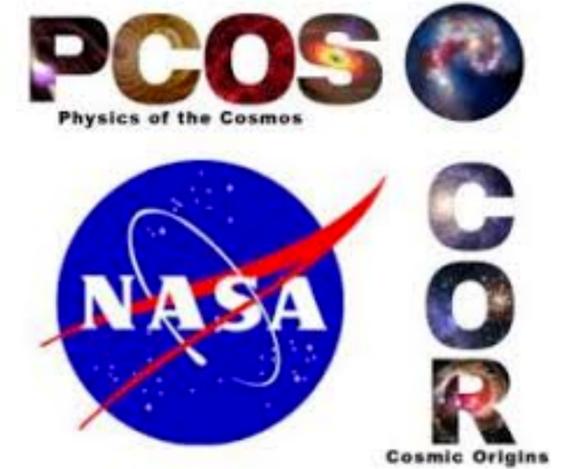


Physics of the Cosmos



X-ray Science Interest Group

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Community College

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CfA | Harvard & Smithsonian

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AAS Annual Meeting
8 January 2020

Schedule for this session



9:15 Intro and Debrief on Astro 2020 APC white papers and new opportunities: XRSIG co-chairs

9:30 Update on eROSITA / Spectrum-X-Gamma: Mara Salvato

9:55 Update on XRISM: Rob Petre

10:20 Diffraction Limited X-ray Telescope: Herman Marshall

Intro to XRSIG



X-ray Science Interest Group

The goal of the X-ray Science Analysis Group (XRSIG) is to provide quantitative metrics and assessments to NASA in regard to future X-ray observatories.

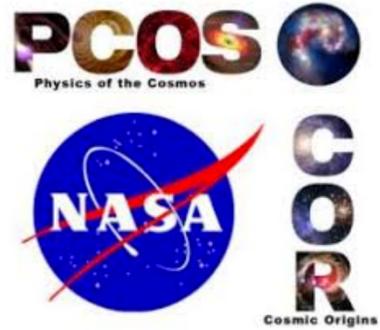
Specifically, the XRSIG will

- Track and analyze evolving science goals and requirements in X-ray astronomy, especially as current "hot" topics evolve.
- Provide an active communication forum for X-ray astrophysics (e.g., via town hall meetings at venues such as AAS and APS meetings).
- Support mission studies and concept development for future X-ray observatories.
- Analyze technology development and prioritization plans with respect to redefined science goals and the evolution of mission concepts (i.e., the XRSIG will aid the PhysPAG in analyzing technology needs).

The XRSIG is open to all members of the community.

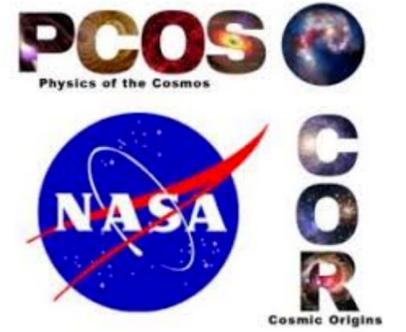
If you are interested in contributing to the work of the XRSIG, please subscribe using the link below. For other inquiries, e-mail co-chairs John Tomsick at jtomsick@ssl.berkeley.edu and Ryan Hickox at ryan.c.hickox@dartmouth.edu

Overview of APC White Papers submitted Astro2020

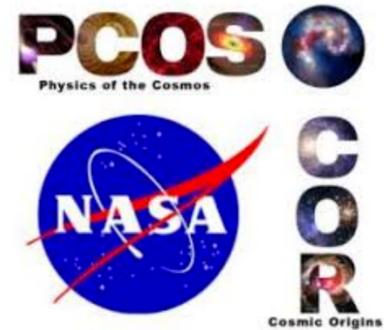


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Overview of APC White Papers submitted Astro202



AGN / SMBHs	Eric	Perlman	Relativistic Jets in the Accretion & Collimation Zone : New Challenges Enabled by New Instruments
AGN / SMBHs	Dheeraj	Pasham	Probing the Cosmological Evolution of Super-massive Black Holes using Tidal Disruption Flares
AGN / SMBHs	Elena	Gallo	Towards a high accuracy measurement of the local black hole occupation fraction in low mass galaxies
AGN / SMBHs	Abderahmen	Zoghbi	Supermassive Black Hole Spin and Reverberation
AGN / SMBHs	Sibasish	Laha	The physics and astrophysics of X-ray outflows from Active Galactic Nuclei.
AGN / SMBHs	Francesco	Tombesi	Do Supermassive Black Hole Winds Impact Galaxy Evolution?
AGN / SMBHs	George	Chartas	A New Era for X-ray Lensing Studies of Quasars and Galaxies
AGN / SMBHs	Eileen	Meyer	Prospects for AGN Studies at Hard X-ray through MeV Energies
AGN / SMBHs	Mateusz	Ruszkowski	Supermassive Black Hole Feedback
AGN / SMBHs	Francesca	Civano	Cosmic evolution of supermassive black holes: A view into the next two decades
AGN / SMBHs	Ryan	Hickox	Resolving the cosmic X-ray background with a next-generation high-energy X-ray observatory
AGN / SMBHs	Michael	Koss	Black Hole Growth in Mergers and Dual AGN
AGN / SMBHs	Susanne	Aalto	Extremely obscured galaxy nuclei , hidden AGNs and extreme starbursts
AGN / SMBHs	Zoltan	Haiman	Electromagnetic Window into the Dawn of Black Holes
Exoplanets / Solar System	Scott	Wolk	X-ray Studies of Exoplanets
Exoplanets / Solar System	Jeremy	Drake	High-Energy Photon and Particle Effects on Exoplanet Atmospheres and Habitability
Exoplanets / Solar System	Alycia	Weinberger	A Strategy for Understanding Planet Formation
Exoplanets / Solar System	Bradford	Snios	X-rays Studies of the Solar System
Galaxies and the CGM	Antara	Basu-Zych	Cooking with X-rays: Can X-ray binaries heat the early Universe?
Galaxies and the CGM	Edmund	Hodges-Kluck	Hot Drivers of Stellar Feedback from 10 to 10,000 pc
Galaxies and the CGM	Benjamin	Oppenheimer	Imprint of Drivers of Galaxy Formation in the Circumgalactic Medium
Galaxies and the CGM	David	Pooley	The Most Powerful Lenses in the Universe: Quasar Microlensing as a Probe of the Lensing Galaxy
Galaxies and the CGM	Grant	Tremblay	Galaxy Winds in the Age of Hyperdimensional Astrophysics
Galaxy Clusters and Groups	Esra	Bulbul	Probing Macro-Scale Gas Motions and Turbulence in Diffuse Cosmic Plasmas
Galaxy Clusters and Groups	Stephen	Walker	Unveiling the Galaxy Cluster - Cosmic Web Connection with X-ray observations in the Next Decade
Galaxy Clusters and Groups	Adam	Mantz	The Future Landscape of High-Redshift Galaxy Cluster Science
Galaxy Clusters and Groups	Joel	Bregman	A Survey of Hot Gas in the Universe
Stars / Star Formation / ISM	Lynne	Valencic	Probing the Structure of Interstellar Dust from Micron to Kpc Scales with X-ray Imaging
Stars / Star Formation / ISM	Lia	Corrales	Astromineralogy of interstellar dust with X-ray spectroscopy
Stars / Star Formation / ISM	Eugene	Churazov	Probing 3D Density and Velocity Fields of ISM in Centers of Galaxies with Future X-Ray Observations
Stars / Star Formation / ISM	Joel	Green	Variability in the Assembly of Protostellar Systems
Stars / Star Formation / ISM	Rachel	Osten	Stellar X-ray Spectroscopy Addresses Fundamental Physics of Stellar Coronae, Accretion, and Winds, and Informs Stellar and Planetary
Stars / Star Formation / ISM	Hans M.	Günther	The fastest components in stellar jets
Stars / Star Formation / ISM	Scott	Wolk	Understanding Galactic Star Formation with Next Generation X-ray Spectroscopy and Imaging
Stars / Star Formation / ISM	Maurice	Leutenegger	The crucial role of high resolution X-ray spectroscopy in studies of massive stars and their winds
Stars / Star Formation / ISM	Raghvendra	Sahai	Probing Strong Binary Interactions and Accretion in Asymptotic Giant Branch Stars
Stellar Black Holes / Neutron stars	Erin	Kara	X-ray follow-up of extragalactic transients
Stellar Black Holes / Neutron stars	Henric	Krawczynski	Using X-Ray Polarimetry to Probe the Physics of Black Holes and Neutron Stars
Stellar Black Holes / Neutron stars	MATTIA	DI MAURO	Prospects for the detection of synchrotron halos around middle-age pulsars
Stellar Black Holes / Neutron stars	Thomas	Maccarone	Compact Stellar Jets
Stellar Black Holes / Neutron stars	Neven	Vulic	Time Domain Studies of Neutron Star and Black Hole Populations: X-ray Identification of Compact Object Types
Stellar Black Holes / Neutron stars	Javier	Garcia	Probing the Black Hole Engine with Measurements of the Relativistic X-ray Reflection Component
Stellar Black Holes / Neutron stars	Andreas	Zezas	X-ray binaries: laboratories for understanding the evolution of compact objects from their birth to their mergers
Stellar Black Holes / Neutron stars	Murray	Brightman	Breaking the limit: Super-Eddington accretion onto black holes and neutron stars
Stellar Black Holes / Neutron stars	James F	Steiner	Accretion Physics with Fast X-ray Spectral Timing
Stellar Black Holes / Neutron stars	Slavko	Bogdanov	Determining the Equation of State of Cold, Dense Matter with X-ray Observations of Neutron Stars
Stellar Black Holes / Neutron stars	Ilaria	Caiazzo	Testing general relativity with accretion onto compact objects
Stellar Black Holes / X-ray binaries	Jon	Miller	Accretion in Stellar-Mass Black Holes at High X-ray Spectral Resolution
Supernovae / SNRs	Brian	Williams	Future X-ray Studies of Supernova Remnants
Supernovae / SNRs	Samar	Safi-Harb	High-Resolution X-ray Imaging Studies of Neutron Stars, Pulsar Wind Nebulae and Supernova Remnants
Supernovae / SNRs	Laura	Lopez	Supernova Remnants in High Definition
Technology	Gabriele	Betancourt-Martinez	Unlocking the Capabilities of Future High-Resolution X-ray Spectroscopy Missions Through Laboratory Astrophysics



Mission concepts



Vikhlinin, Alexey	Lynx X-ray Observatory
Camp, Jordan	Transient Astrophysics Probe
Mushotzky, Richard	The Advanced X-ray Imaging Satellite
McEntaffer, Randall	The X-ray Grating Spectroscopy Probe
Madsen, Kristin	HEX-P: The High-Energy X-ray Probe
Heyl, Jeremy	The Colibrì High-Resolution X-ray Telescope
Jahoda, Keith	The X-ray Polarization Probe mission concept
Ray, Paul	STROBE-X: X-ray Timing and Spectroscopy on Dynamical Timescales from Microseconds to Years

Supporting activities



Chen, Weibo	Advanced Mechanical Cryocooler Technology Maturation
Madsen, Kristin	Securing The Infrastructure of High-Energy Cross-Calibration
Nave, Gillian	Atomic data for astrophysics: Needs and challenges
Smith, Randall	Laboratory Astrophysics Needs for X-ray Grating Spectrometers
Kallman, Timothy	Laboratory Astrophysics Needs for X-ray Calorimeter Observatories
Jahoda, Keith	Cal X-1: an absolute in-orbit calibrator for current and future X-ray observatories
Havey, Keith	Low Strain Mounting Techniques for Lynx X-ray Optics

Generally applicable



Szalay, Alexander	The Emergence of Long-Lived, High-Value Data Collections
Levenson, Nancy A.	Scientific Advancement through Flagship Space Missions
Peek, Joshua	Robust Archives Maximize Scientific Accessibility
Barry, Richard	Advanced Astrophysics Discovery Technology in the Era of Data Driven Astronomy
Kollmeier, Juna	Theoretical Astrophysics 2020-2030
Ardila, David	SmallSats for Astrophysics