Lynx Newsletter

Volume 1, Number 4 (December 2017)

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Visit our website!

***Lynx* is a large X-ray Observatory that will revolutionize our view of the Universe by providing unique insight into the high-energy drivers that govern its formation and evolution.**

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Community Involvement

New ideas, fresh perspectives, and objective outside critiques are important to keep Lynx moving forward. Feel free to forward this newsletter to those who might be interested in being a part of this project. With your help, we may see Lynx launch in the 2030s!

Have you mentioned the Lynx mission in a paper or presentation? We want to know! If you feel comfortable sharing, please upload this information to our public Google Drive, or email lynxtelescope@gmail.com.

You can also join the discussion at one of our weekly STDT meetings:

Weekly STDT Meetings
Wednesdays at 1:30 Central
WebEx info can be found here.

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Chandra Special Call for Proposals: Pathfinder Science for Potential Chandra Successor Mission (CSM)

Deadline: Wednesday 24 January 2018, 6PM EST.

About this Call:

The purpose of this special Chandra call is to propose for new Chandra observations that can demonstrate the feasibility for key CSM goals or otherwise enhance CSM science prospects. Proposals from all areas of astrophysics will be considered. It is anticipated that the results of these pathfinder studies will inform the CSM science case(s) to be considered by the 2020 Astrophysics Decadal Survey Committee.

The Chandra X-ray Observatory (CXO) has enabled many ground-breaking discoveries because it is the first X-ray mission with sub-arcsecond imaging and spectroscopy. Requirements for a CSM include large gains in collecting area over current missions, coupled with high angular resolution and a large field of view. *Lynx* is one example of a potential CSM, and is one of four Large Mission concept studies funded by NASA in preparation for the 2020 Astrophysics Decadal Survey.

Up to 1 Msec of Director's Discretionary Time (DDT) may be devoted to CSM programs. Approved CSM Programs will be scheduled during Cycle 19 (calendar year 2018) as feasibility allows. Funding is available to eligible PIs/CoIs at the same level as for General Observer Programs. Successful proposers will be allowed a full year of proprietary time for CSM targets. No archive or theory funds are available for this Call.

Full call PDF.
More information from Chandra website.

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American Astronomical Society 231st Meeting
January 8th-12th, 2018 in Washington, DC.

Many STDT members will be at AAS giving talks related to Lynx and x-ray astronomy. Several talks and meetings are highlighted below:

Hyperwall Talks about Lynx
These talks will commence during conference breaks. Ryan Hickox, Juna Kollmeier, and David Pooley will be speaking.

Hyperwall times:

Tuesday, January 9th from 9:10 – 9:35am (Joint Mission Concept Studies Talk)
Wednesday, January 10th from 9:10 – 9:20am (Lynx)
Thursday, January 11th from 9:10 – 9:35am (Joint Mission Concept Studies Talk)
Friday, January 12th from 9:20 – 9:30am (Lynx)

NASA PhysPAG X-ray SIG
Monday, January 8th, 10:30 AM - 12:30 PM at Maryland Ballroom 4 (Gaylord at National Harbor)
This is an x-ray science interest group meeting, and Jessica Gaskin will be speaking.

NASA COPAG
Monday, January 8th, 3:00 – 6:00pm at Maryland Ballroom 1–2–3 (Gaylord at National Harbor)
The full COPAG will meet to discuss items of interest to NASA's Cosmic Origins Community. Alexey Vikhlinin will be speaking.

NASA PhysPAG
Monday, January 8th, 3:00 – 6:00pm at Maryland Ballroom 4–5–6 (Gaylord at National Harbor)
This is a Physics of the Cosmos program analysis group meeting.

NASA Decadal Preparations I: Large-scale Studies
Presentations from all four Decadal studies, including Lynx
Tuesday, January 9th, 10:00-11:30am at Potomac Ballroom D (Gaylord at National Harbor)

Lynx mission concept study
Alexey Vikhlinin, Smithsonian Astrophysical Observatory

Abstract: Lynx is an observatory-class mission, featuring high throughput, exquisite angular resolution over a substantial field of view, and high spectral resolution for point and extended X-ray sources. The design requirements provide a tremendous leap in capabilities relative to missions such as Chandra and Athena. Lynx will observe the dawn of supermassive black holes through detection of very faint X-ray sources in the early universe and will reveal the "invisible drivers" of galaxy and structure formation through observations of hot, diffuse baryons in and around the galaxies. Lynx will enable breakthroughs across all of astrophysics, ranging from detailed understanding of stellar activity including effects on habitability of associated planets to population statistics of neutron stars and black holes in the Local Group galaxies, to earliest groups and clusters of galaxies, and to cosmology.

Serendipitous X-Ray Catalogs: A View from Infrared and Time-Domain Studies
Daniel Stern, Jet Propulsion Laboratory/California Institute of Technology
Wednesday, January 10th, 2:40pm at Maryland Ballroom C (Gaylord at National Harbor)

Abstract: Serendipitous X-ray catalogs from Chandra and XMM have provided an important legacy for multi-wavelength studies. I will discuss a few uses we have made of this resource for studies of extreme AGN identfied from mid-IR and/or optical time-domain studies -- specifically, from the WISE satellite and/or the Catalina Real-time Transient Survey (CRTS). Specifically, I will discuss Assef et al. (2016; ApJ, 819, 111), which reports on a deep (170 ks) archival Chandra observation of an extremely luminous AGN with extremely red mid-IR colors, i.e., a so-called "Hot, Dust-Obscured Galaxy" or HotDOG. The deep, public X-ray data allowed unique insight into this rare source class. I will also discuss archival X-ray observations of several quasars with extreme optical and/or mid-IR light curves

Future prospects with the Chandra and XMM source catalogs: Setting the stage for Lynx
Ryan Hickox, Physics and Astronomy, Dartmouth College
Wednesday, January 10th, 2:56pm at Maryland Ballroom C (Gaylord at National Harbor)

Abstract: Lynx is a NASA concept X-ray mission that will probe the distant Universe to extremely faint fluxes and with superb angular resolution. I will discuss how the Chandra and XMM X-ray source catalogs will enable important progress on our understanding of AGN populations and will inform the preparations for the Lynx survey program. The wide areas covered by these serendipitous surveys enable a census of the X-ray Universe that includes low-luminosity AGN such as low-Eddington and dwarf systems, as well as rare sources such as super-Eddington AGN and mergers. Characterizing these AGN provides a view of the populations that, at high redshifts, will be uniquely detected and characterized with Lynx. The XMM and Chandra source catalogs also provide important constraints on the evolution of the quasar luminosity function, allowing more accurate predictions for the number of lower-luminosity, high redshift sources that may be detected with Lynx as it probes the formation of black holes in the early Universe.

Implications from XMM and Chandra Source Catalogs for Future Studies with Lynx
Andrew Ptak, X-ray Astrophysics Lab, NASA/GSFC
Thursday, January 11th, 2:00pm at National Harbor 5 (Gaylord at National Harbor)

Abstract: Lynx will perform extremely sensitive X-ray surveys by combining very high-resolution imaging over a large field of view with a high effective area. These will include deep planned surveys and serendipitous source surveys. Here we discuss implications that can be gleaned from current Chandra and XMM-Newton serendipitous source surveys. These current surveys have discovered novel sources such as tidal disruption events, binary AGN, and ULX pulsars. In addition, these surveys have detected large samples of normal galaxies, low-luminosity AGN and quasars due to the wide-area coverage of the Chandra and XMM-Newton source catalogs, allowing the evolution of these phenomena to be explored. The wide area Lynx surveys will probe down further in flux and will be coupled with very sensitive wide-area surveys such as LSST and SKA, allowing for detailed modeling of their SEDs and the discovery of rare, exotic sources and transient events.

The Bursting Universe: New Tools for Cosmology and Physics
Rachel Osten, Space Telescope Science Institute; Johns Hopkins University
Thursday, January 11th, 2:50pm at Potomac Ballroom D (Gaylord at National Harbor)

Abstract: The Very Large Array's versatile operations enable it to respond quickly to track and study transient phenomena in the universe. This was one of the main science drivers for the recent upgrade to what is now the Jansky VLA, and results have demonstrated the fundamental role of radio observations in the follow-up of transients. Radio frequency measurements of rapidly variable phenomena enable important constraints on the energy budget of astrophysical explosions and study of how these explosions interact with the local environment, to name a few. Radio studies of the bursting universe also provide new tools for making important advances in cosmology and fundamental physics. The study of pulsars and their precision timing enables superior constraints on fundamental physics as well as astrophysical questions of stellar dynamics, star formation histories, and stellar evolution. Pulsars in the Galactic center move in the space-time potential of a supermassive black hole and afford many opportunities for fundamental tests of gravity. The myriad of open questions regarding the formation and growth of black holes over many orders of magnitude in mass require sensitive radio measurements with high resolution imaging to begin to address. I will describe how the ngVLA project, a combination of increase in sensitivity and capability to observe at microwave frequencies and above, is necessary to make these advances, such as potential radio transients associated with the merger of supermassive black holes, stellar radio flares complementing future multiwavelength observations, the use of pulsars for physics and astrophysics, and others.

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Upcoming Lynx Face-to-Face Meeting

Date and Location: January 25th-26th, 2018 in Houston, Texas.

This upcoming FTF will focus on the observatory design and interim report. Detailed agenda and venue information can be found here. STDT meetings are open to the public. Call in information will be available on our website as we get closer to the meeting date.

Primary goals include:

- Review of the instruments trades and science traceability to requirements
- Decide mission cost strategy
- Decide mission architecture strategy
- Review of the Interim Report science case and determine STDT support

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HEAD Special Meeting: High Energy Astrophysics in the 2020's and Beyond

Date and Location: March 18th-21st 2018 in Rosemont, Illinois

Meeting description:

The current decade is a golden age for high energy astrophysics. A fleet of powerful orbiting observatories, large, medium and small, continue to discover new phenomena across the X-ray and gamma ray bands. Ground-based high energy astrophysics and multi-messenger astrophysics has also advanced dramatically, with the highlight of the decade being the direct detection of gravitational radiation by LIGO and coincident e/m radiation by Fermi, INTEGRAL and numerous space- and ground-based observatories. In contrast the 2020's offers an uncertain future. The fleet of great observatories is aging, with few or no successors planned. The next new large orbiting high energy facility, ATHENA, will not launch until the end of the decade.

The purpose of this HEAD special meeting is to provide a forum to identify the key areas of discovery for astronomy and particularly high energy astrophysics in the next decade, and to explore ways of advocating high energy astrophysics to the decadal survey panel. This meeting will provide an opportunity for discussing the potential scientific advances offered by the numerous space and ground based high energy observatories being planned and/or studied. Discussion sessions will be held to identify strategies for community advocacy to the decadal survey panel and how HEAD can play a role in facilitating this.

Visit the meeting website for more details.

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Calendar

You can view our public Google calendar! Additionally, Gmail users can add events directly from this calendar to their own.

View all of our past events.

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To subscribe or unsubscribe, to leave feedback, list events, or to ask questions, please e-mail lynxtelescope@gmail.com.