

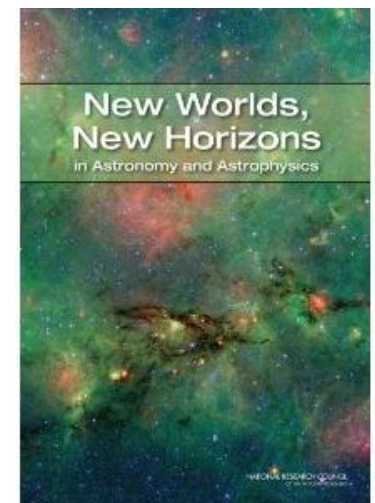
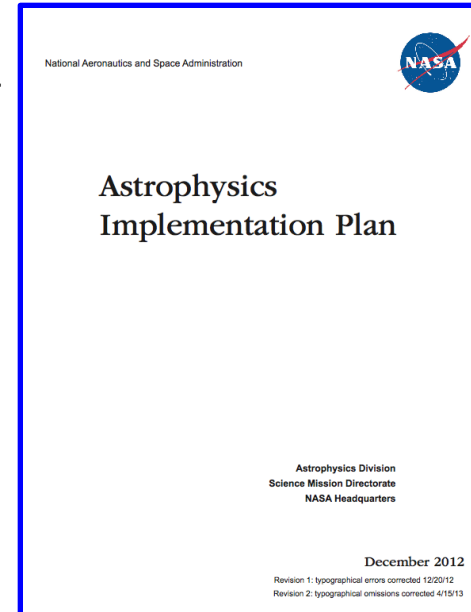
Physics of the Cosmos
Program Analysis Group:
Status Report

John Nousek (Penn State University)

APS – 27 Mar 2014 – NASA HQ

Physics of the Cosmos (PCOS): Scientific and Technical Stewardship for future missions

- Provide scientific and technical stewardship for decadal-survey recommended missions within the framework of the Astrophysics Implementation Plan:
 - Of the six highly-ranked large and medium space-based priorities in NWNH, THREE fall within the PCOS science program:
 - LISA
 - IXO
 - Inflation Probe (medium-scale)
 - NOTE: WFIRST is located within the Exoplanet Program and the science of dark energy is within PCOS
- NASA Scientific Leadership:
- Rita Sambruna – HQ PCOS Program Scientist
- Ann Hornschemeier – PCOS Program Chief Scientist



Courtesy - Ann Hornschemeier

PhysPAG Town Hall at Jan AAS

- PhysPAG conducted a half-day group meeting at AAS (National Harbor)
 - Sunday, 5 Jan 2014
- In morning SIGs (XRSIG, GammaSIG & Cosmic SIG) held open meetings
- Paul Hertz (Astrophysics Div. Director) addressed PhysPAG on status of Astrophysics Division
- Reports from six SIGs
- Discussion of the PCOS Technology Needs priorities (T. Pham & M. Clampin)

PhysPAG SIG Reports

- **IPSIG:** There has been tremendous progress over the last several months with the detections of B-mode polarization in the CMB, both from inflationary gravity waves, and from lensing of the CMB photons as they travel through the Universe toward us. These exciting results require confirmation and verification, which will be provided in the near term by ground and balloon experiments. In terms of a space mission, the next step is a mission study to re-assess the case and prepare for it. The IPSIG is organizing a community telecon, which will be held within the next few weeks, to discuss such a mission study.
- **Gamma-SIG:** The GammaSIG plans to develop a community white paper outlining the scientific priorities for gamma-ray astronomy in the next 5-10 years. This white paper will also consider those types of missions that would be needed to achieve those goals.

X-ray-SIG Report

- Coordinated inputs to NASA HQ on potential areas of US contributions to the ATHENA mission
 - Chair attended the ATHENA meeting in Germany; along with official NASA rep (Petre) to maintain the dialog with the ATHENA leadership
- Upcoming XRSIG activities:
 - Small, informal planning meeting will be held at the Boston AAS (June) as a prelude/planning to the HEAD meeting.
 - Will attend the Savannah APS meeting and present a brief (5-10min) outlook on X-ray astrophysics geared towards APS membership
 - Full XRSIG meeting at the HEAD meeting (Chicago, August 17 -21). Meeting objectives will be to status recent technology developments; identify technology gaps, and have an open discussion of strategies for future X-ray missions given the ATHENA selection.
 - Provide HQ with inputs, if requested, in terms of community views of NASA progress in fulfilling the 2010 Decadal objectives as part of the mid-decadal review process.

CosmicSIG Report

- Goals of CosmicSIG
 - Provide an assessment to NASA HQ and the PCOS program office of the status and the current and future needs of the cosmic-ray astrophysics community.
 - Act as a focal point and forum for the cosmic ray community.
 - White Paper with Cosmic Ray vision for the next decade(s)
 - Gather input from Community
 - Survey current and future projects and missions and their science goals and coverage
 - Survey technology development needs for future progress in the field
- Gathering input from Community
 - June 2012: open meeting at CR2012 requesting input from the community
 - Teleconferences and email input for further information gathering.
 - ICRC 2013 Fall 2013: compile previous white papers (Astro 2010 prep to NWNH, Enduring Quests Daring Visions,...).
 - April 2014: present at APS meeting

GW-SIG Report

- LISA Pathfinder expected to launch in July 2015. GW-SIG concerned that lack of US participation in LPF misses unique opportunity to learn key technologies
- GM attended the eLISA Consortium meeting. It appears that the elongated L3 schedule proposed by SPC/ESA either not properly communicated to NASA or ESA already falling behind their own schedule.
 - LISA Pathfinder community expressed strong concerns that it does not have enough trained personnel to perform the online data analysis and adjust the scheduled LPF experiments in time during mission operation and that we will not learn as much as we could from LPF.
- At AAS, GM noted budget for L-class missions in Europe ~constant
 - Delay in L1 and/or L2 will delay L3 unless an external source can 'buy' schedule back.
- GM expressed hope successful Pathfinder launch & GW detection by aLIGO/VIRGO/pulsar timing arrays will help case for start of large GW mission in the next decade (launch still early 2030s).
- LISA Symp-U. Florida May 18-23 <http://www.phys.ufl.edu/lisasymposiumx/index.html>
 - GW-SIG will discuss with eLISA Consortium /Japan /China status and expected future developments in our area.

GW-SIG Report (Part II)

- Gathering input from Community
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 - Teleconferences and email input for further information gathering.
 - ICRC 2013 Fall 2013: compile previous white papers (Astro 2010 prep to NWNH, Enduring Quests Daring Visions,...).
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PhysPAG at Future Meetings

- Six Exec members will attend the Savannah GA APS meeting 6 Apr 2014
 - PCOS/PhysPAG is sponsoring an open Mini-Symposium
- PCOS/PhysPAG will conduct a Town Hall at the Chicago IL HEAD meeting
 - 17 Aug 2014
- PCOS/PhysPAG will conduct a Town Hall at the Seattle WA AAS meeting
 - 4 Jan 2015
- PhysPAG will also have presences at various topical meetings:
 - LISA Symposium, Gainesville FL – 22 May 2014
 - LISA-VIRGO Meeting, Stanford CA – 25 Aug 2014
 - CMB Planning Workshop, Minneapolis MN – 1 Sep 2014
 - INTEGRAL Workshop, Annapolis MD – 15 Sep 2014
 - LISA-VIRGO Meeting, Pasadena CA – 16 Mar 2015