PhysPAG

31 July 2012
NAC APS Report

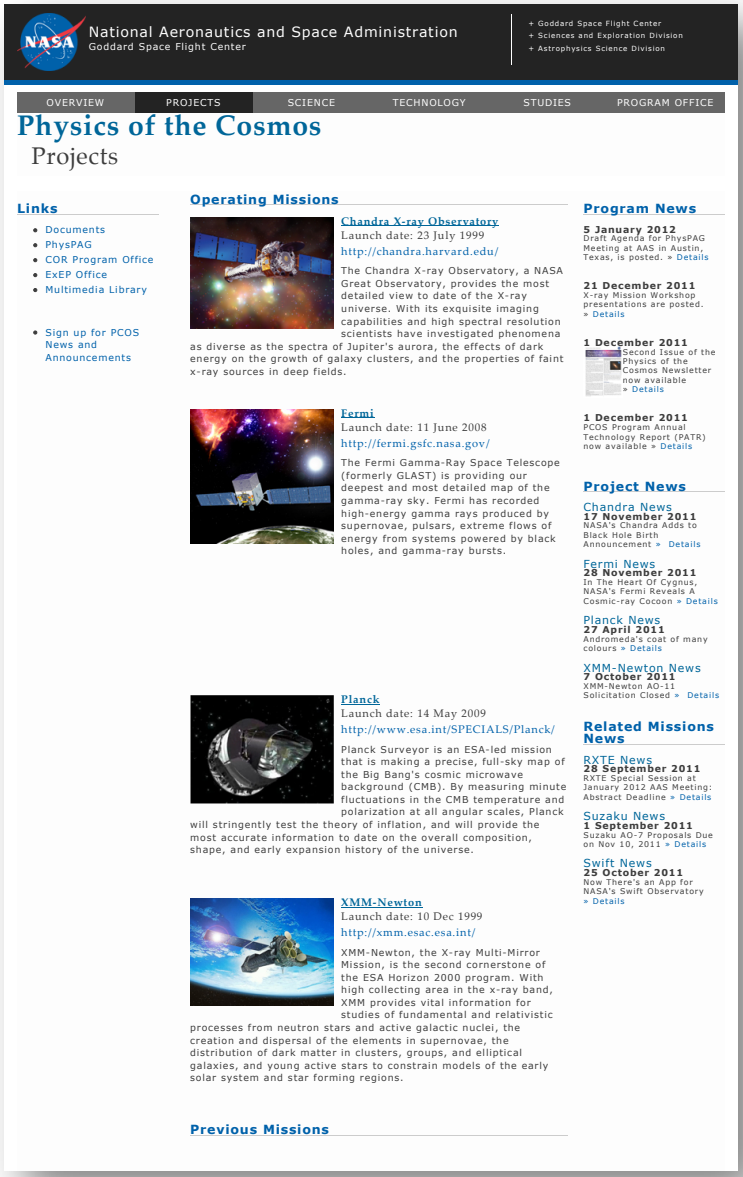
S. Ritz

See
http://pcos.gsfc.nasa.gov/physpag.php

Includes email sign-up for news and announcements. Reports from previous meetings, links to APS reports, …

PCOS Science and Missions

- *Physics of the Cosmos spans the fields of high-energy astrophysics, cosmology, and fundamental physics, and includes a wide range of science goals. These include the following:*
  - ***Expand our knowledge of dark energy***
  - ***Precisely measure the cosmological parameters governing the evolution of the universe and test the inflation hypothesis of the Big Bang***
  - ***Test the validity of Einstein's General Theory of Relativity and investigate the nature of spacetime***
  - ***Understand the formation and growth of massive black holes and their role in the evolution of galaxies***
  - ***Study the origin and acceleration of cosmic rays***
  - ***Particle Signals of Dark Matter***



Executive Committee

- Jay Bookbinder (CfA)
- Shaul Hanany (Minnesota)
- Liz Hays (GSFC)
- Guido Mueller (UFL)
- Jason Rhodes (JPL)
- Steve Ritz (UCSC), chair

PhysPAG is much, much more than the EC!

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Most Recent Activities

- Interactions with the Project Office on Technology
- Planning for 14-16 August Jamboree in Washington:
  - startup of approved SAGs for X-ray, Gravitational Wave, and Gamma-ray communities and continued work by IPSAG
  - plenary and parallel sessions defined
- Received proposal for a CRSAG
- Planning for meetings in 2013 at AAS, American Physical Society, HEAD…plus presence at smaller topical meetings.

PhysPAG Meeting Block Schedule

104 registered participants as of 10 July

14 August	15 August	16 August
8:30 Welcome, PhysPAG intro, plan for meeting 8:45 News from HQ (10+5) 9:00 PCOS program brief (15+5) 9:20 Q&A (10)	8:30-10:30 Dark Energy Focus Topic Plenary	9:00 -10:30 PLENARY REPORTS (20+10 each) • DE, Gamma, IP
9:30-10:00 COPAG Report (20+10)		
10:00-10:30 ExoPAG Report (20+10)		
10:30-11 BREAK	10:30-11 BREAK	10:30-11:00 BREAK
11-12:15 X-ray study results and discussion (45+30)	11-12: Discussions with NASA HQ	11:00-12:00 PLENARY REPORTS continue (20+10) • GW, X-ray
12:15-13:45 LUNCH	12-13:30 LUNCH	12:00-13:00 Further discussions with NASA HQ 13:00 Meeting Wrap-up, Adjourn Afternoon free for satellite meetings.
13:45-15:00 GW study results and discussion (45+30)	13:30-15:00 Parallel sessions	
15:00-15:30 Opportunities for Cosmic Ray Science (20+10)		
15:30-16:00 BREAK	15:00-15:30 BREAK (all groups together)	
16:00-18:00 Parallel sessions start	15:30-18:00 Parallel sessions wrap up	
18:00 adjourn	18:00 adjourn	

PhysPAG August Detailed Agenda

PhysPAG Meeting 2012

Meeting Agenda

- Monday, 14 August
  - 8:30 Welcome, PhysPAG Intro, Meeting Plan - S. Ritz
  - 8:45 News from HQ (10+5)
  - 9:00 PCOS Program Brief (15+5)
  - 9:20 Q&A
  - 9:30 COPAG Report (20+10) - C. Martin
  - 10:00 ExoPAG Report (20+10) -S. Gaudi
  - 10:30 BREAK
  - 11:00 X-ray Study Results and Discussion (45+30) - R. Petre
  - 12:15 LUNCH
  - 13:45 GW Study Results and Discussion (45+30) - J. Livas/I. Thorpe
  - 15:00 Opportunities for Cosmic Ray Science (20+10) - A. Olinto
  - 15:30 BREAK
  - 16:00-18:00 X-ray and GW Parallel Sessions start
  - 18:00 Adjourn

- Tuesday, 15 August
  - 8:30-10:30 Dark Energy Focus Topic Plenary Session:
    - Rachel Bean (via telecon): Dark Energy Overview and the Big Picture (30 mins)
    - Neil Gehrels : WFIRST status update (15 mins)
    - Paul Schechter: WFIRST and Euclid Science (30 mins)
    - David Weinberg: Beyond WFIRST, LSST and Euclid (30 mins)
  - 8:30-10:30 IPSAG Parallel Session
  - 10:30 BREAK
  - 11:00 Group Discussions with Paul Hertz
  - 12:00 LUNCH
  - 13:30-18:00 Parallel Sessions
    - **DE**
    - **IPSAG**
    - **GWSAG**
    - **XRSAG**
    - GWSAG -- No Formal Agenda, White Paper Work Session
  - 18:00 Adjourn

- Wednesday, 16 August
  - 9:00 Dark Energy report (20+10) - J. Rhodes
  - 9:30 GRSAG report (20+10) - E. Hays
  - 10:00 IPSAG report (20+10) - S. Hanany
  - 10:30 BREAK
  - 11:00 GWSAG report (20+10) - G. Mueller
  - 11:30 XRSAG report (20+10) - J. Bookbinder
  - 12:00 Further discussions - HQ, all
  - 13:00 Meeting wrap-up, adjourn

http://pcos.gsfc.nasa.gov/physpag/meeting-agenda.php

Breakout Sessions Defined

XRSAG

Tues 08/14 - 14:00 - 15:30 - 1.5 hours

- Detailed update on the Concept Studies & Discussion – R. Petre (45 min + 15)
  - AXSIO, N-XGS, N-WFI, X-CAL, future missions
  - Recommendations from the study
  - Next steps
- Discussion on mission costings – lessons' observed and how to improve the process Daelmans/Bookbinder – (20 +10 min)

Wed 08/15 – 13:30 – 15:00 -1.5 hours

- Update on recent mission activities: Var - (30 min)
  - NuSTAR launch and first results
  - Astro-H status
  - Implications of GEMs cancellation - impact on the science and the communi
- Upcoming instrument/mission flight opportunities - MoO, SMEX, other? Open Discussion (15 min)
- International participations – TBD speaker & Open discussion (20 min)
  - L1 status and process: impact of non-selection of ATHENA & NGO & plan re-submittal
  - developing int'l collaborations - new ideas and approaches.
    - How to partner ESA (junior/senior partner)
    - Potentials for other countries: Brazil, China, India - risks and opportunities

Wed 08/15 - 15:30 – 17:30 -2 hours

- Technology Development planning – var. speakers
  - status of current efforts in optics – 30 min
  - status of current efforts in detectors – 20 min
  - Future needs for tech development – 20 min
    - near term – FY 13, 14
    - far term
  - Developing an integrated technology development plan/roadmap – 20 min
- And other potential sources of funding outside of the traditional (NASA/NSF)

GWSAG

16:00-16:45 The situation in Europe and the rest of the world (Danzmann)
- L1 process:
  - NGO Consortium construct
  - SSAC and SPC decisions
- L2/Cornerstone process:
  - NGO/eLISA Organization in Europe
  - Partnership options for Europe

16:45 - 17:00 Discussion

17:00 - 17:30 Role of the GW-SAG (GM, Someone from PCOS) 30min
- GW-SAG within PhysPAG
  - Depends on existence or non-existence of a Study team at GSFC/JPL and a GW-Science team
  - If GW-SAG is all, do we have to push for an expansion of number of supported people (travel support)?

08/15 Parallel Session GW SAG

13:30 - 15:00 Exploring options for the NASA
- Junior Partner with ESA
- Full partner with ESA
- Doing it alone
- China

in light of expected funding profiles

Different technology programs/plans for different options
- Being aware of ESA's way of doing business.
- How to prioritize technology plans?

15:30 - 17:30 How do we continue?
Wrap up

IPSAG

Agenda

8:00 – 8:30	Coffee
8:30 – 8:45	Background (15 min) - Hanany Bring the audience up to speed on recent IP history, decadal panel recommendations, status within NASA HQ, Goals of Workshop.
8:45 – 9:35	Planck (40 min) – Lawrence + Crill Discussion (10 min) What have we learned from Planck about technology, foregrounds, calibration and systematics.
9:35 – 10:35	Progress by sub-orbitals: Balloons (25 min) - Jones Ground-based (20 min) – Lee Discussion (15 min) What progress can we anticipate by sub-orbitals by the time of the mid-decade review? What else do we want to achieve by mid-decade and later in term of sub-orbital experiments?
10:35 – 11:00	Break
11:00 – 12:00	Meeting with Paul Hertz
12:00 – 1:15	Lunch break
1:15 – 2:25	CORE (15 min) - de Bernardis, EPIC (15 min) - Bock, PIXIE (15 min) - Kogut, LiteBIRD (15 min) – Hazumi Discussion (10 min)
2:25 – 3:20	Technology development Detector Arrays and Focal Plane Coupling (25 min) - Moseley Multiplexing (15 min)- Irwin Discussion (15 min) What are the key immediate areas for development? Where is the technology heading in the near term (<2015) and mid-term (>2015)?
3:20 – 3:30	Break
3:30 – 4:10	NASA HQ and Program office

DE Session

Physpag Meeting 15 August 2014

DE plenary Session 8:30 AM- 10:30 AM

Rachel Bean (via telecon): Dark Energy Overview and the Big Picture (30 mins)
Neil Gehrels : WFIRST status update (15 mins)
Paul Schechter: WFIRST and Euclid Science (30 mins)
David Weinberg: Beyond WFIRST, LSST and Euclid (30 mins)

Parallel Sessions:

Issues to be considered:

13:30-15:00

Benefit of an IFU on a dark energy mission (Greg Aldering)

Ground based projects (Gary Bernstein)

Computing Needs (Julian Borrill)

15:30-17:30

Technology needs (Jason Rhodes)

2.4M NRO WFIRST, benefits and advocacy (Gehrels and Schechter)

…plus GammaSAG whitepaper organization session

CRSAG PROPOSAL

Proposal for a Cosmic-ray Science Analysis Group (CosmicSAG)

Angela Olinto and Eun-Suk Seo

June 20, 2012

Goals

- 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.

CRSAG PROPOSAL

Deliverables

1) White paper:

major open science questions

brief survey of current state-of-the-art capabilities:

current and planned, US and International, space and ground-based

energy coverage: from ~ 10^8 eV to above 10^{20} eV

particle types: nucleons, nuclei, anti-nucleons, anti-nuclei, e+ e-, neutrinos

(energy and sky coverage for each particle type)

Possible leaps in capabilities over the next 10-15 years,

Potential science return corresponding to those capabilities.

Techniques used in each cosmic-ray band for both balloon and satellite platforms.

2) List of **technology development needs** with timelines.

3) Suggestions to help **support the specific needs** of this community: organizational, scientific, funding.

CRSAG PROPOSAL

Timescale

- "June 2012": open meeting at CR2012 requesting input from the community.
- July 2012 – at COSPAR
- Teleconferences and email input: for further information gathering.
- August - December 2012: compile/write white paper.
- January 2013: Circulate to the community for feedback
- February 2013: Deliver white paper to PhysPAG (+ NAC)
- Present white paper at April 2013 - APS meeting.

Thanks

- *Thanks to all SAG members for their hard work and the PCOS office for their support*

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Discussion

- CRSAG proposal
- Feedback on all PhysPAG activities
- …