

APS

# PhysPAG Technology SAG

Input to the NRC Review of NASA  
Technology Road Maps

(please also see attachments)

Steve Ritz & Roger Brissenden  
for the TechSAG of PhysPAG

7 April 2011

# Technology Task

- NRC reviewing NASA Office of the Chief Technologist (OCT) technology road maps
  - Workshops held to solicit community input
  - Deadline for input via web forms, 4/15/11
- PhysPAG Technology SAG formed to review roadmaps for gaps against PCOS needs and provide NRC input (+ other tasks)
- Task approved by APS at 2/16-17/11 meeting

# NRC Input

- NRC requested input via workshops and web form:
  - Name, goal, TRL, tipping point, NASA capabilities, benefit, alignment with NASA and non-NASA needs, risk, timing, required effort
  - See <http://www8.nationalacademies.org/asebsurvey/tabs/>
- TechSAG benefitted from interactions with two NRC Workshop (Irvine; 3/29/11) presenters who are also TechSAG members:
  - X-ray Photon Detectors (Steve Murray)
  - Development of microcalorimeters for both sub-mm and X-ray applications (Kent Irwin)

# PhysPAG Technology SAG Process

- SAG Telecons held 2/25, 3/10, 3/30
- Updated 2005 Technology Roadmap to provide framework (Attachment 1)
- Assessed PCOS technology areas against Draft Science Instruments, Observatories, and Sensor Systems Roadmap (TA08) for gaps and required updates
- A community input gathering activity, not a critical assessment.

# PCOS Technology Checklist

	Mission Technology	TechSAG relative to TA08
2010 Decadal	WFIRST	ok
	LISA	input to NRC, not reviewed by LISA Project
	IXO	ok
	Inflation Probe	input to NRC
	Fundamental Physics	still needs input to NRC (incomplete)
Near-term push	Next Generation Hard X-ray	input to NRC
	Soft X-ray and EUV	input to NRC
	Next Generation X-ray Timing	input to NRC
	Next Generation Medium-Energy Gamma-Ray: Compton	input to NRC
Long-term push	Next Generation Medium-Energy Gamma-Ray: Laue	input to NRC
	Beyond LISA	input to NRC
	Beyond IXO	ok

- Gathered technology needs vs. near- and long-term PCOS needs
- Input to NRC for gaps/ updates identified for 9 of 12 mission areas
- **Caveats:**
  - LISA Project has not reviewed LISA items in our list.
  - Insufficient time to complete Fundamental Physics (*e.g.*, space-qualified precision clocks,...)

# NRC Input Material

- Plan to submit Attachments 2-10 to NRC web site by deadline 4/15/11
- Request APS comment and concurrence to submit
  - Propose name of submitter would include “based on community inputs to the NASA Astrophysics Subcommittee”

# Discussion

# Backup



# Technology SAG

- Technology SAG team membership invited at public PhysPAG meeting at Seattle AAS:
  - Roger Brissenden (lead; member of PhysPAG EC; SAO)
  - Randall Correll (Ball)
  - Kathy Flanagan (STScI)
  - Liz Hays (GSFC)
  - Shaun Hanany (UMN)
  - Kent Irwin (NIST)
  - Guido Mueller (U. Florida)
  - Steve Murray (JHU)
  - Jason Rhodes (JPL)
  - Dan Schwartz (SAO)
  - Colleen Wilson-Hodge (MSFC)
  - Kent Wood (NRL)
- NASA Observers: Jaya Bajpayee, Jean Cottam, Rita Sambruna, Mike Moore