UV/Visible RFI

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RFI Workshop
September 18, 2012

National Aeronautics and Space Administration
Cosmic Origins Program Office

Participation

- COR RFI Web Site:
- http://cor.gsfc.nasa.gov/RFI2012/rfi2012-responses.php

- RFI Workshop Web Site:
- http://www.stsci.edu/institute/conference/rfi_copag_2012

- How to dial in by telephone and online:

  Date: Tuesday, September 18, 2012
  Time: 8:00 am, Eastern Daylight Time (New York, GMT-04:00)
  Meeting Number: **801 456 031**
  Meeting Password: **copag2012**
  Toll-free dial-in for audio: **1-866-692-4541**, passcode **7053595**

  1. Go to:
  https://spacetelescope.webex.com/spacetelescope/j.php?ED=182609182&UID=1294559492&PW=NNDg1OTAzZDQ0&RT=MiMxMQ%3D%3D
  2. If requested, enter your name and email address.
  3. If a password is required, enter the meeting password: copag2012
     Click Join.

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Agenda

September 18, 2012
8:30am – 10:45am EDT USA (GMT -4h)

8:30am	Host Welcome	Ken Sembach
8:40am	Introduction NASA's timeline for the next strategic astrophysics mission Cosmic Origins Program's role	Mansoor Ahmed
8:55am	UV/Visible Concept Study Plan Near Term Plan (RFI 1&2, workshops, etc.) Long Term Plan (Mid-decadal, mission concept etc.	Dominic Benford
9:10am	UV/Visible RFI Responses Overview / Categories Number of Responses and affiliations Science Topic Categorization	Susan Neff
9:30am	Set up for Rapid Science Summaries	
9:35pm	6 Rapid Science Summaries Topic: Intergalactic Medium 5 minutes per Responder + topical Q&A	Todd Tripp Steve McCandliss Mike Shull Claudia Scarlata David Schiminovich Gerard Kriss
10:45am	*Morning Break*	

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Agenda

September 18, 2012
11:00am – 3:20pm EDT USA (GMT -4h)

11:00am	8 Rapid Science Summaries Topic: Star Formation & Nearby Galaxies 5 minutes per Responder + topical Q&A	Paul Scowen Paul Scowen Aida Wofford Martin Barstow Tom Brown Paul Goudfrooij Ben Williams Karl Gordon
12:30pm	*Lunch; informal discussions for each Science Topic*	
1:30am	5 Rapid Science Summaries Topic: Stars 5 minutes per Responder + topical Q&A	Tom Madura (for Gull) Ian Roederer (for Lawler) Myron Smith (for Neiner) Rico Ignace Ken Carpenter
2:25pm	5 Rapid Science Summaries Topic: Galaxy Evolution 5 minutes per Responder + topical Q&A	Jerry Kriss (for Peterson) Steve Kraemer Matthew Hayes Paul Scowen Sally Heap
3:20pm	*Afternoon Break*	

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Agenda

September 18, 2012
3:35pm– 5:30pm EDT USA (GMT -4h)

3:35pm	6 Rapid Science Summaries Topic: Other Science (Planets, Cross-topic) 5 minutes per Responder + topical Q&A	Charley Noecker Kevin France Mike Wong Ana Gomez de Castro John Hutchings (for Côté) Jason Tumlinson
4:35pm	Discussion of Science Integration Process	Moderator
5:20pm	Path Forward	Dominic Benford
5:30pm	Adjourn	

RFI Basics

- Request for Information released 25 May 2012 – NSPIRES
- Visit http://tinyurl.com/7skstfn for NSPIRES web site.
- Visit http://cor.gsfc.nasa.gov/RFI2012/ for current RFI information

Prosaic RFI Purpose

For this RFI, we seek to discern the future of UV/visible astrophysics by posing the question: what observing proposal will you write in the next decade?

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Big Picture: Context

- Use scientific priorities of Astro2010 Decadal Survey to guide strategy
  - Due to budget constraints, no new missions other than Explorers can enter formulation before FY17 (when JWST approached launch).

- In order to prepare for a new mission starting in FY17, a near term program of mission concept studies and technology development will be undertaken, with the goal of making a mid-decade decision on which mission(s) will begin formulation starting as early as FY17.
  - Currently there are no new starts for large missions. Moderate missions ("Probes") will be studied, in addition to a large mission (e.g., WFIRST), to be prepared for a mid-decade decision.
  - Mission concepts studied must derive from the science of the missions and recommendations prioritized in the Decadal Survey.

- New strategic missions in the future are possible only if the Astrophysics budget recovers a large portion of the SMD funds freed up as the JWST budget begins to decrease in FY18 and out.

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Big Picture: Timeline

2012	Study WFIRST options.
	Solicit ideas from the community for studies of moderate missions that address DS priorities.
	Establish community study teams for mission concepts.
	Initiate mission concept studies within the programs.
	Use community analysis groups to inform process.
2013	Use competed and directed technology programs to develop enabling technology and mission concepts.
2014	Continue from 2013.
2015	Using community input, conduct prioritization and decision process for new formulation start.
	Start pre-formulation for new strategic mission.
	Start NRC mid-decade review.
2016	Complete mid-decade review. Revise plans as necessary in response to report.
2017	New formulation start for strategic mission.

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COR Implementation

- Elucidation of Cosmic Origins version of strategic vision
- Overall goal set by opportunity to start a new astrophysics mission in latter years of this decade, presumed scoped for a <$1B-class project (life cycle).
- Guidance from mid-decadal survey likely to provide the de facto selection of this mission, derived from a suite of lucidly defined, prudently designed, and reliably costed mission concepts.
- (Our near-term goal includes maturing specific, high-priority technologies for a mission concept to provide the necessary capabilities to produce high-impact scientific discoveries in the post-HST era at UV and visible wavelengths.)

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UV/Vis RFI Responses

The responses were intended to:

- Come from any person or group
- Represent a clear idea of detailed science investigation
- Support COR and DS science
- Coalesce people doing UV/Vis science
- Provide a working set of science requirements directed to future UV/visible mission concept and pursuant technologies

RFI Workshop

- All RFI responses have been amalgamated and made available for people to peruse
  - http://cor.gsfc.nasa.gov/RFI2012/
- Respondents summarize science objectives
- Discuss path forward to synthesize coherent set (s) of science objectives that support DS
- COPAG will serve as conduit & focus for analysis towards future probe-scale science requirements set, to be defined by Fall 2012

Path Forward

- Further activities concerning technologies, instruments, and mission concepts to be released in the new year.
- Technology priorities realign as needed to support results of RFI findings.
- Funded concept study/studies presumed in the pipeline for 2013 initiation.
- Prominent placement of UV/Vis mission concept in ~2015.

Backup: NWNH

Definition of a Future Ultraviolet-Optical Space Capability

Following the fourth servicing mission, the Hubble Space Telescope (HST) is now more capable than ever before and is enabling spectacular science, including observation at ultraviolet wavelengths. No more servicing missions are planned, and NASA intends to deorbit HST robotically at the end of the decade. The committee endorses this decision. Meanwhile, the results from FUSE, GALEX, and the HST's Cosmic Origins Spectrograph now show that as much could be learned about the universe at ultraviolet wavelengths as motivated the proposal and development of JWST for observations at infrared wavelengths. Topics that are central to the survey's committee's proposed science program include understanding the history of the intergalactic medium and its cycling in and out of galaxies as well as the evolution of normal stars and galaxies.

Key advances could be made with a telescope with a 4-meter-diameter aperture with large field of view and fitted with high-efficiency UV and optical cameras/ spectrographs operating at shorter wavelengths than HST. This is a compelling vision that requires further technology development. The committee highly recommends a modest program of technology development to begin mission trade-off studies, in particular those contrasting coronagraph and star-shade approaches, and to invest in essential technologies such as detectors, coatings, and optics, to prepare for a mission to be considered by the 2020 decadal survey. A notional budget of $40 million for the decade is recommended.

From "New Worlds, New Horizons in Astronomy and Astrophysics"