Cosmic Origins Program Analysis Group

Astrophysics Subcommittee Telecon

November 19, 2014

K. Sembach

COPAG Executive Committee

Current members

- Julianne Dalcanton (U. Washington)
- Jonathan Gardner* (GSFC)
- Paul Goldsmith* (JPL)
- Lynne Hillenbrand (Caltech)
- David Leisawitz (GSFC)
- Charles Lillie*
- Christopher Martin (Caltech) – former chair
- James Lowenthal (Smith College)
- Paul Scowen (Arizona State)
- Ken Sembach (STScI) – chair

*Term ends November 2013

Ex-officio members

Susan Neff (GSFC, COR Program Office)
Mario Perez (NASA HQ)
Michael Garcia (NASA HQ)

- NASA HQ and the EC chair are actively seeking 4-5 replacement members.
  - Expect selections within the next week or two

Current SAGs

SAG #1: Science objectives for a 4m–8m UV/Optical mission

SAG #2: Technologies for a 4m-class monolithic telescope UV/Optical mission w/internal coronagraph

SAG #3: Technologies for an 8m-class segmented telescope UV/Optical mission w/external occulter

SAG #4: Technologies for a future far-IR mission

SAG #5: Science objectives and technology requirements for a series of Cosmic Origins Probes

SAG #1 Closure Request

- SAG #1: Science objectives for a 4m–8m UV/Optical mission
  - Coordinated with ExoPAG via joint workshops in 2011-2012
  - Superseded by recently commissioned AURA "JWST and Beyond" study
  - Duplicates other efforts (e.g., ATLAST science case)
    - See http://www.stsci.edu/institute/atlast/atlast-documents-articles
  - All of above efforts are related
  - Request that SAG #1 be formally closed at this time

SAG #2 Closure Request

- SAG #2: Technologies for a 4m-class monolithic telescope UV/Optical mission w/internal coronagraph
  - Coordinated with ExoPAG via joint workshops in 2011-2012, with report produced by C. Lillie
    - See http://cor.gsfc.nasa.gov/docs/Lillie_SAG2.pdf
  - Superseded in part by closure of ExoPAG SAG #5
    - Flagship Exoplanet Imaging Mission Science Goals and Requirements Report by T. Greene, C. Noecker, et al.
    - See http://arxiv.org/ftp/arxiv/papers/1303/1303.6707.pdf
  - Superseded in part by Astrophysics Division Internal Coronagraph STDT
    - Two year study, final report due in January 2015, led by Karl Stapelfelt
    - See https://exep.jpl.nasa.gov/stdt/
  - Request that SAG #2 be formally closed at this time

SAG #3 Closure Request

- SAG #3: Technologies for an 8m-class segmented telescope UV/Optical mission w/external occulter
  - Superseded by joint Center-led efforts at GSFC, JPL, and MSFC
    - Still in formulation
  - Superseded by ATLAST technology development plan
    - http://www.stsci.edu/institute/atlast/documents/ATLAST_Tech_Dev_Plan.pdf
    - http://www.stsci.edu/institute/atlast/documents/ATLAST_NASA_ASMCS_Public_Report.pdf
  - Superseded (in part) by Astrophysics Division External Occulter STDT
    - Two year study, final report due in January 2015, led by Sara Seager
    - See https://exep.jpl.nasa.gov/stdt/
  - Request that SAG #3 be formally closed at this time

SAG #4 Report and Closure Request

- SAG #4: Technologies for a future far-IR mission
  - Work completed
  - Report submitted here for consideration by the Astrophysics Subcommittee
    - Cosmic Origins Program Analysis Group SAG #4: Technology Needs for Future Far-IR Telescopes and Instruments by P. Goldsmith & D. Leisawitz
    - http://cor.gsfc.nasa.gov/docs/COPAG_SAG4_report_final_Nov2013.pdf
  - Request that SAG #4 be formally closed upon acceptance of the report by the Astrophysics Subcommittee

SAG #5 Status

- SAG #5: Science objectives and technology requirements for a series of Cosmic Origins Probes
  - Support of NASA RFI workshop at STScI in September 2012
    - A one-day community workshop to discuss and prioritize a cohesive set of likely science goals that can motivate development of the next generation Ultraviolet/Visible space astrophysics mission(s)
  - Discussions with the community at the January 2013 AAS meeting
  - Work presently on hiatus, but will resume in near future
  - Report expected in the Spring 2014 timeframe

Request for New SAG/SIG Starts

- SAG #6: Cosmic Origins Science Enabled by the WFIRST-AFTA Coronagraph
- SAG #7: Science Enabled by Operations Overlap of the Hubble Space Telescope and the James Webb Space Telescope
- SAG #8: Science Enabled by the WFIRST-AFTA Data Archive
- SIG #1: Far-Infrared Cosmic Origins Science and Technology Development

SAG #6: Cosmic Origins Science Enabled by the WFIRST-AFTA Coronagraph

- Summary: This Science Analysis Group [SAG #6] will analyze submissions for the recent WFIRST-AFTA SDT call for coronagraphic science white papers, and document this analysis in a report to the Astrophysics Subcommittee. Depending on the number of responses received to the coronagraphic science call, the SAG may also solicit additional scientific input from experts in the community to include in its report.

- Full text available in accompanying document.

SAG #7: Cosmic Origins Science Enabled by Operations Overlap of HST and JWST

- Summary: This Science Analysis Group [SAG #7] will engage the astronomical community in outlining the scientific case for having HST and JWST operations overlap:
  - 1) Are there precursor observations that HST should do prior to JWST launch that might not otherwise be done through the regular time allocation process?
  - 2) Are there compelling science cases for simultaneous HST – JWST observations?
  - 3) Are there compelling science cases for HST follow-up of JWST observations or discoveries?
  - 4) Are there expected discoveries by other facilities in the 2020 timeframe (such as Euclid or LSST) that would require follow-up by both HST and JWST?

- The SAG will analyze the input it receives from the community, identify compelling Cosmic Origins science requiring simultaneous operation of HST and JWST, and determine if there are science drivers that may be of benefit in planning early operations of JWST or extended operations of HST. The SAG will document its findings in a report to the Astrophysics Subcommittee.

- Full text available in accompanying document.

SAG #8: Cosmic Origins Science Enabled by the WFIRST-AFTA Data Archive

- Summary: This Science Analysis Group [SAG #8] will analyze how the archive is to be used and scope the data requirements necessary to conduct science investigations related to the Cosmic Origins theme. The SAG will solicit input from the community to identify the types of investigations that will be conducted, and the kinds of data products that are valued and needed. The SAG will also consider what other assets or efforts may be needed to maximize the science return from the WFIRST archive (e.g., coordination of WFIRST-AFTA data with LSST, Euclid, or JWST; GO funding for ground-based observations or theoretical studies). The SAG will document its findings in a report to the Astrophysics Subcommittee.

- Full text available in accompanying document.

SIG #1: Far-Infrared Cosmic Origins Science and Technology Development

- Summary: This Far-Infrared Science Interest Group [SIG #1] will work with the COPAG to collect community input and address long-term objectives of the far-infrared astronomy community. Through the SIG, the community will update the existing community-based roadmap for technology development for missions of different scales. The SIG will organize a community workshop (tentatively, Spring 2014) to assist in the collection of community input. The SIG activities are expected to occur over an extended period of time, with results reported at periodic intervals (quarterly or semi-annually) to the COPAG Executive Committee and the Astrophysics Subcommittee.

- Full text available in accompanying document.