

Astro 2020



Decadal Survey on Astronomy and Astrophysics

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Survey Scope

- Ground and space-based observations, theory, computation, lab astrophysics
- Ground-based solar astronomy
- Gravitational-wave observations as related to astronomy and astrophysics
- Multi-messenger astronomy and astrophysics
- Exoplanets
 - informed by recent NAS studies on exoplanet science strategy and astrobiology
- Consider implementation and scope of WFIRST, Athena, LISA
 - Need not be ranked
- Excluded: direct dark matter detection, microgravity research, fundamental physics, projects under construction (JWST, DKIST, LSST, DESI)

Statement of Task Highlights

- Review current state of astronomy and astrophysics
- Identify compelling science challenges for future
- Develop research strategy to advance scientific frontiers in 2022-2032
 - Recommend and rank high priority activities
 - Consider international and private landscape
 - Consider timing, cost and risk
- Develop decision rules for robust program
- Assess the state of the profession
 - Provide specific, actionable and practical recommendations

Statement of Task Follow-Up

- Chairs have met with senior management at NASA (Zurbuchen, Hertz), NSF (Green), DOE (Turner). Planning to meet with France Cordova, Anne Kinney in April
 - all agencies want to see ambitious programs backed by strong science cases
 - need for clear decision rules underscored by everyone
 - Astro2020 will coordinate with NASA internal reviews of 4 flagship, 10 probe concepts
- RFI for CATE process (now TRACE) issued
- chairs developing guidelines for assessing WFIRST, Athena, LISA; points of contact with projects established

Notional Decadal Survey Timeline Shown at Jan AAS government shutdown has impacted this schedule, rebuild in progress

- Co-Chairs Announced - End of November 2018
- Survey committee identified & appointed - Early Spring, 2019. **In progress**
- Panels formed - Late Spring, 2019
- Panel deliberations - Late CY2019
- Survey deliberations and report writing - Spring 2020
- Public report released - Late 2020
- Presentations to stakeholders - continuing after public report released

Science White Papers

- deadline extended to **March 11** to accommodate those affected by the government shutdown
- very strong community interest
 - received ~590 submissions (vs 337 for Astro2010)
 - other communities (e.g., ESA VOYAGE 2050, Canada LRP2020) have adopted the same approach
- submissions were encouraged from all segments of community
 - foster student journal club discussions, early career participation
 - widespread discussion of submitted papers ongoing
- all submitted white papers are available to view on the www.nas.edu/astro2020 website.

Notice of Intent for Activity, Project or State of the Profession White Papers (APCs)

- NOI has been issued, deadline was **March 20**
 - ~300 received
 - responses will help with panel planning and ensuring needed expertise
- NOI is not required before submitting an APC, but is strongly encouraged
- 5-10 page APCs tentatively due **July 1**, formal announcement coming soon
- some concerns expressed by large projects (space and ground) on future information flow

Survey Committee and Panels

- Steering committee ~20 members including co-chairs
 - responsible for overall decadal activity, recommendations and final report
 - received >450 nominations
 - formation in final stages, everyone asked to date has accepted
- Panel structure will be similar to Astro2010, but with fully supported State of Profession activity. Precise panel definitions being discussed with NAS to fit budgetary constraints.
 - Minor changes to fairly represent emerging fields on science panels, accommodate larger space panel(s), and full consideration of cross-disciplinary issues (e.g., lab astrophysics, computation, data science, etc)

TRACE Process

- Independent Technical Risk and Cost Evaluation process (formerly CATE)
 - Recognize these are (largely) pre-Phase A concepts
 - Emphasis on cost “box” and technology development needs
 - Require expertise on ground-based projects
- Status
 - RFI to solicit contractor proposals
 - Contractor selection complete by end April
 - Unpaid consultants identified to help with detailed RFQ

Community Engagement

- primary engagement from community is via white papers
 - response, emulation by other surveys seems to validate approach
- expand flow of information and survey updates
 - chairs' updates via Astro2020 website, AAS, etc
 - live and web-based town halls (first webinar April 17)
 - local town hall meetings by survey committee members
 - continuously updated FAQ page
- coordinate with AAS to engage directly with early career and under-represented communities in our profession
- NAS organized early-career Astro2020 workshop in 2018, chairs met with leaders (via telecon) to review recommendations, options for future activities

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