Contents

Astronomy and Astrophysics Advisory

Official Meeting Minutes

Date: August 15, 2025
Time: 10:00 am – 6:00 pm
Location: https://nsf.zoomgov.com/webinar/register/WN_JBI9nvj0RAOnNBCyYMkzVA
Meeting Type: Regular- Virtual
Congressional Mandate Reference: SEC. 23 of P.L. 107-368 (the National Science Foundation Authorization Act of 2002) and amended by SEC. 5 of P.L. 108-423 (the Department of Energy High-End Computing Revitalization Act of 2004).

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1. Call to Order

Designated Federal Official: Jacqueline Keane
Time Meeting Called to Order: [10:11 AM]

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2. Attendance and Roll Call

Total Attendees (including public): 179

Committee Members' Present: 10

Britt Lundgren – Chair | Darcy Barron – Co- Deputy Chair | Alyson Brooks – Co- Deputy Chair | Hee-Jong Seo | Katherine Follette | Arielle Phillips | Steven Boggs | Dana Longcope | Cornelia Lang | David Trilling

Committee Members Absent: 1

Anja von der Linden

Other Officials or Staff Present: 64

Presenters:

Robert (Chris) Smith- NSF, MPS/AST Interim Division Director | Hans Krimm- NSF, MPS/AST Acting Deputy Division Director | Jacqueline Keane- NSF, MPS/AST Designated Federal Official | David Berkowitz- NSF, MPS/OAD Assistant Director | Shawn Domagal-Goldman- NASA, Acting Astrophysics Division Director | Kathy Turner- DOE, High Energy Physics | Dara Norman- AAS President | Zeljko Ivezic- University of Washington, Director of Rubin Construction | Aaron Roodman- SLAC, Deputy Division Director of Rubin Construction

Others:

Tiana Faulcon- NSF—assoc. | Marion Dierickx- NSF | Valerie Maizel- NSF | Nigel Sharp- NSF Portia Flowers- NSF | Vyacheslav Lukin- NSF | Craig McClure- NSF | Chris Davis- NSF | Jonathan Williams- NSF | Gioia Rau- NSF | Donna O'Malley- NSF | Matthew Viau- NSF | Joe Pesce- NSF | Megan Johnson- NSF | Carrie Black- NSF | Jackie Milingo- NSF | Martin Still- NSF | Vladimir Papitashvili- NSF | Joshua Thorton- NSF—assoc. Bryan Field- DOE | Chris Jackson- DOE | Alise Fisher- DOE | La'Nese Lovings- DOE | Joseph Diehl- DOE | Eric Feng- DOE | Regina Rameika- DOE | Manuel Batista- DOE | Helmut Marsiske- DOE | Abid Patwa- NASA | David Leisawitz- NASA | Peg Luce- NASA | Hannah Jang- Condell- NASA | Jane Rigby- NASA | Stephanie Milam- NASA | Brian Humensky- NASA | Rita Sambruna- NASA | Philip Kaaret- NASA | Barbara Grofic- NASA | Knicole Colon- NASA | Mary Dobay- NASA | Eileen Mitchell- NASA | Patrick Crouse- NASA | Joshua Pepper- NASA | Michelle Hui- NASA | Jenniffer Wiseman- NASA | David Morris- NASA | Peter Kurczynski- NASA | Antonino Cucchiara- NASA | Alyssa Barlis- NASA | Jordan Eagle- NASA | Elaine Denning- NASA | Patricia Knezek- NASA | Julie McEnery- NASA | Ron Gamble- NASA | Rhiannon Roberts- NASA

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3. Approval of Previous Meeting Minutes

Meeting Date: November 19, 2024
Motion to Approve by: Darcy Barron
Seconded by: Steven Boggs
Vote Result:
X Approved
☐ Approved with Amendments
☐ Rejected

Meeting minutes were approved with a vote of 9-0

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4. Agenda Items and Proceedings

[10:11 AM] **4.1 Welcome, Opening Remarks**

Presenter: *Jacqueline Keane*, *Designated Federal Official*
Summary: The meeting was called to order by Jacqueline Keane the Designated Federal Official for the meeting. A thank you was given to the committee members for serving. Committee members were reminded that they are playing an important role in shaping the programs and policies of the Federal Government. Keane reviewed the logistics, FACA procedures, impartiality, and relevant "acts" to follow.

[10:17 AM] **4.2 Review of the Charge**

Presenter: *Chris Smith*

Summary: Chris Smith, Interim Division Director (NSF), started off with introductions of committee members. Members introduced themselves, their universities, as well as their area of study. Three members, Michael McCarthy, Ann Zabludoff, and Sarah Horst have rotated off since AAAC's last meeting and Smith thanks those members for their contributions as the AAAC moves into this new cycle of meetings.

Smith reviewed the AAAC Charge (purpose). He reminded everyone that the charge is reviewed once a year. AAAC is a congressional mandated FACA committee. The charge has 2 pillars. 1. To assess and make recommendations regarding the coordination of astronomy and Astrophysics programs of NSF, NASA, and DOE. 2. Assess and make recommendations regarding the status of the activities of NSF, NASA, and DOE as they relate to the recommendations contained in the Decadal and reports of similar nature. The committee is asked to focus on these two pillars and keep those pillars in mind as they go through discussions. Further emphasis was put on the annual report. Committee members were encouraged to look back at the annual reports on the website to understand the impact of the findings and recommendations. He reminded the committee that NSF hosts the AAAC, but it is tri-agency coverage, which makes it unique. Committee members are reminded where the charter, memberships, reports and agendas can be found.

Smith finished his presentation with a tentative cycle for the AAAC for the 2025/2026 cycle. The cycle suggests a monthly meeting cadence, adhering to the (4) meetings per cycle year, as mandated, beginning with this meeting in August.

End of Presentation.

Jacqueline Keane spoke to inform the audience of a slight change to the schedule in which the Assistant Director, Dave Berkowitz, will attend the meeting at 2pm to address the committee. Britt Lundgren, Deputy Chair, was then introduced for chair remarks.

[10:34 AM] **4.3 Chair Remarks**

Presenter: *Britt Lundgren, Deputy Chair*

Summary: Lundgren shared that she has some remarks as well as her plan to summarize the report that was written earlier in the year. She welcomed and sent thanks to the new and returning members as well as the agency heads from NSF, DOE, and NASA. It was stated that the report was published on March 14th of this year and was prepared and considered in full compliance with the congressional charter and FACA requirements. Time was taken to summarize the findings and recommendations for NSF and NASA. The 2025 annual report lauded the agencies on having made coordinated measurable progress towards the priorities of Astro2020. The committee congratulated NSF, DOE, and the

hundreds of scientists and engineers involved in the Rubin project. Lundgren gave a summary of the report and reviewed it throughout the presentation. The summary outlined recent developments, recommendations, milestones, highlights and progress. Recent developments include:

- Loss of experts at the federal science agencies
- Mass termination of awarded grands and funding solicitations
- Discontinuation of support of CMBS 4
- Scaling back of graduate astronomy grants

These developments risk fully seeding US leadership in astronomy and astrophysics research to China and the EU. The recommendations for maintaining US leadership in Astronomy requires:

- Sustaining levels of federal science funding
- Retaining a full complement of staff at federal science agencies
- Investing in next-generation facilities
- Supporting educational pathways to STEM careers

Lundgren reviewed a celebration of a few milestones which included:

- 35th anniversary of the Hubble Space Telescope
- 25th anniversary of Chandra X ray Observatory
- James Webb Space telescope

Science Highlights: Using data from NASA's JWST AND Chandra X-ray Observatory, astronomers discovered a low mass supermassive black hole at the center of a galaxy just 1.5 billion years after the Big Bang.

Next, Lundgren discussed the return from completing projects prioritized in the last decadal; Major projects prioritized in ASTRO2010:

- ALMA is entering its second decade of operations.
- DESI survey completed its 3rd year of operations.
- Near completion of the Roman space telescope. It is on track to launch October 2026
- The NSF-DOE Vera C. Rubin observatory will begin full operations in late 2025.

Progress towards major projects prioritized in ASTRO2020:

- ASTRO2020 endorsed the US-ELT the highest-ranking priority for major facilities projects.
- The second highest priority puts equal weight towards ngVLA and CMBS4.

Recommendation for US-ELT: The mid-decadal review be conducted on schedule starting in 2025

Recommendations:

- NgVLA- To maintain momentum and maximize investment, the AAAC recommends that the ngVLA proceed to the preliminary design phase.
- CMB-S4- NSF Office of Polar Programs should work to release the updated South Pole Master Plan in a timely fashion.
- Dark and Quiet Skies- International agreements for compliance standards are needed. Agencies continue to develop funding opportunities that support vital work.
- Workforce development: Prioritize expanding and sustaining funding initiatives.
- Community Astronomy- Continue to broaden and strengthen channels of communication and collaboration. Strategic planning should honor local and indigenous perspectives.
- Infrastructure development for time domain and multi-messenger science (TDAMM)- Real-time coordination is essential. Recommendations on protecting dark and quiet skies are also relevant here.

Lundgren ended her review of the report by thanking all the authors who contributed to the report and the meeting is returned to Jacqueline Keane, DFO.

End of Presentation.

[11:09 AM] **4.4 Approval of Minutes**

Britt Lundgren, Chair, asked for a motion to approve the minutes. Darcy Barron motioned to approve the meeting minutes. Steven Boggs seconded the motion. The minutes were approved with a vote of 9-0. Jacqueline Keane, DFO, declares the minutes from November 2024's meeting approved.

[11:10 AM] 5 Minute Break

5. Agency Reports

[11:15 AM] **5.1 NSF Update**

Presenter: *Chris Smith, Interim Division Director, NSF*
Summary: Smith welcomed everyone and thanked the members for being at the meeting as well as those who have joined. He acknowledged that he would give an NSF Astronomy update and not an Astrophysics update as the cover slide suggested. Smith began his presentation discussing what the Astronomy (AST) division at NSF does. He gave a brief review of the Division of Astronomical Sciences (AST) and a thank you given to those who

have served, namely James (Jim) Neff who was the Deputy Division Director for several years and has been around through the transition of (5) Division Directors.

Smith shared a highlight of the Astronomical Program, the NSF-DOE Vera C. Rubin Observatory. It was described as cutting-edge technology for a new era. The presentation segued on Window on the Universe and TDAMM. The 4th TDAMM workshop will take place in Huntsville, AL October 27-30, 2025.

There was a brief discussion on the follow up on the AAAC report as well as the Lab Astrophysics activities. He shares a collaboration with NASA and others to push a meeting to discuss the scientific development needs and foster collaboration. Key themes included but were not limited to Planetary Atmospheres & Biosignatures and Diffuse Media: Gas, Dust, and Beyond. Smith also highlighted the result from the Greenbank telescope-Cosmic Chemistry Breakthrough: Largest Aromatic Molecule found in deep space.

Next, an overview of the science programs at AST was reviewed. These programs are science & people and workforce development programs in the Astronomical Sciences division at NSF. They include AAG, REU, AAPF, LEAPS, GRFP, CAREER, and GRANTED. These programs are devoted to supporting both science and workforce development. The PAARE and ASCEND programs have been archived and are not open for proposals. He discussed AST Proposal Success Rates and that there was a record number of proposals in 2024. The average over the decade in terms of success rate is about 20%.

Smith explained that AST's budget goes to the major research facilities: NSO, NOIRLab, and NROA, all of which are under 3 umbrellas: Solar observations, optical infrared nighttime observations, and radio observations.

Dark Energy cameras discovered a new dwarf planet.

NSF Spectrum management updated:

- Agreements have been signed with AST SpaceMobile and Amazon's Project Kuiper.
- NSF NOIRLab continues its work of Dark Skies Protection in Chile.

Smith announced that DOE and NSF have jointly decided that they can no longer support the CMB-S4 Project as a project. They will continue to partner with the CMB science community. NSF will continue to support current CMB activities at the South Pole and in Chile.

NSF Budget

Smith discussed the NSF budget and explained that the budget is a developing picture specifically for FY 26. The FY25 appropriations, FY26 Presidents Budget Request, as well as the Senate and House marks for NSF were discussed. All of those are ongoing discussions.

Smith concluded his agency update with looking forward to the long-term. Emphasis was put on the importance of prioritizing the existing facilities so that room can be made for new facilities, prioritizing emerging research opportunities and technologies, and exploring and justifying options for future divestments (if necessary). This is the Portfolio Prioritization Process (P3).

End of presentation

[11:51 AM] **Committee Comments/ Questions:**

- Alyson Brooks inquired about a possible public statement regarding the GRFP announcement.
    - Hans Krimm says the announcement is delayed but is still expected this year, though no official commitment has been made.
- Cornelia Lang (AAAC Member) asked Smith what form community input will take and whether the MPSAC criteria are useful in the P3 process.
    - Smith responded that community engagement will be managed by the FFRDCs and is expected to include AAS workshops and town halls. He added that some MPSAC criteria will likely be relevant in phases 2 and 3 of the process.

[12:01 PM] **5.2 DOE Update**

Presenter: *Kathy Turner – High Energy Physics, DOE*
Summary: Turner introduced herself and the other members of the Cosmic Frontier Subprogram at DOE- Bryan Field, Manuel Bautista, and Chris Jackson (detailee), who were all present at the meeting. Turner began her presentation with a program introduction to include the agency mission – emphasizing that DOE is a mission-oriented agency, the system of National labs—10 of which are science labs, Office of Science by the numbers, and the High Energy Physics (HEP) organization . Turner moved into the guidance, planning, and execution. She identified the Cosmic Frontier guidance and reviewed some of the studies that made the primary efforts which included:

- PASAG (2009) which helped focus and give criteria for which roles and responsibilities the office should take on in this area of astrophysics and links with astronomy.

- Astro2010 recommended participation in Dark Energy, DOE/NSF partnership on LSST (Rubin); DESI.
- P5 (2014) recommended science and project priorities aligned with science drivers.
- Astro2020 recommended DOE/NSF partnership on CMB-S4. Dark Ages identified as discovery area.
- P5 (2023) first recommendation: fully carry out the current program (2014 P5. Astro2010, Astro2020).

Turner then moved into the execution of the missions in which the emphasis is placed on planning, building experiments, operating, and publishing results.

Turner then reviewed the HEP budget history from 2013 to present and shared HEP Budget for FY25 → FY26. The information shared includes-

FY 25: HEP increased 2.3% (+ $24.6M) from $1.2B in FY 24 to $1.225B in FY 25.

Cosmic Frontier budget details: AI/ML has been a growing part of the program.

Office of Science & HEP Initiatives in Research Funding- Turner called out some of the HEP initiatives that are a part of the research budget which include:

- Artificial intelligence and Machine Learning (AI/ML)
- Micro electronics
- Quantum information science (QIS)

Next, Turner highlighted the Cosmic Frontier- Dark Energy Experiments, the imaging and spectroscopic surveys to determine the fate and history of the universe. She also highlighted the DESI results—hints that dark energy may be dynamic.

Turner moved into discussing the roles in the NSF/DOE Vera C. Rubin Observatory with LSSTCam and the Simonyi Survey Telescope. She identified that the construction/commissioning responsibilities for DOE are LSST camera fabrication and commissioning. The operations responsibilities are 50/50 between both DOE and NSF to include- LSSTCam maintenance/ ops, computing, data verification, systems, and management roles. She also reviewed the timeline form when the LSSTCam was shipped to Chile in May 2024 to present final commissioning and science verification. The Rubin First look event was emphasized, and Turner discussed the turnout in person, number of watch parties- logging over 350, and the media response.

Turner discussed a partnership with NASA, Dark Ages: LuSEE-Night. It is described as a payload on a commercial lunar lander in NASA's Commercial Lunar Payload Services (CLPs) initiative. It will be launched and will land and be operated from the far side of the moon. Turner then discussed the Cosmic Microwave Background (CMB) projects/

operations and research only efforts. She emphasizes that CMB research is still very much a priority for the program, primarily, detecting gravitational waves from the inflationary era.

There was a brief review of Cosmic Frontier- Dark Matter experiments- variety of methods, technologies & particle types (WIMPs and axions) from 2000 to 2035, looking ahead.

Next, Turner gave an update on data management, showing different kinds of projects and experiments and the data rate, stored rate, and computing facilities for Cosmic Frontier.

Finally, Turner examined the related and overlapping efforts as well as initiatives. She identifies what the Cosmic Frontier related R&D included which is:

- Advanced Sensors
- Electronics
- Low- threshold LAr/LXe TPCs
- Ultra-low background assaying techniques and materials

The primary initiatives Turner listed are micro-electronics, quantum information science, and AI/ML. She stated these initiatives are being used to empathize strategic topics which can benefit HEP, science.

Turner concluded by saying that great science is happening and on the way at the Cosmic Frontier and in the Office of High Energy Physics and the DOE Office of Science.

End of presentation.

[12:40 PM] **Committee Questions/ Comments:**

- Hee-Jong Seo referenced the FY2026 budget slide, noting a decrease in R&D funding and an increase in the AI/ML budget. She asked if Cosmic Frontier proposals with AI/ML components could benefit from this shift or if they must apply through other programs.
    - Bryan Field (DOE) responded that proposals explicitly using AI/ML can be partially funded through the AI/ML budget, making it easier to support.
- Britt Lundgren asked if there is any directive to prioritize AI/ML proposals in cosmology that also minimize CPU/GPU use.
    - Field suggests there's no formal incentive, but such priorities could be considered if there's sufficient interest.

[12:45 PM] 30-Minute Break

[1:15 PM] **5.3 NASA Update**

Presenter: *Shawn Domagal-Goldman, Acting Astrophysics Division Director, NASA*
Summary: Domagal-Goldman began with a Budget Management Overview, which included 4 areas: Planning, Programming, Budgeting, and Execution. He summarized that the focus right now is spending the money from the fiscal years for which there are appropriations in place, which are FY24 and FY25 as they are operating under a continuing resolution for right now. He remarked that the President's Budget request has been sent over to Congress for their consideration. It was also mentioned that they are working internally on FY27 as well, which will soon go over to OMB for their consideration.

Then, Domagal moved into sharing the progress that is being made under the support for Astrophysics at NASA. This progress includes:

- Nancy Grace Roman Telescope, in which the team has kept its project on schedule and on budget. It is currently scheduled for launch in October of 2026. That is ahead of its launch readiness date.
- SPHEREx Team, who successfully delivered not just to a launch pad, but to space. SPHEREx is successfully operating and delivering science data.

Next, Domagal shared images of 3I ATLAS that were captured using the Hubble Space Telescope as well as images of the binary system Alpha Centauri. An image from the Habitable Worlds Observatory Conference was shared to display the success of the conference and emphasize the community effort and collaboration of space partners and government teams.

Domagal shared the plans and research analysis programs. The information shared is as follows:

(ROSES Element) There was a release on a delayed basis. There was a 2025 solicitation which includes ADAP, AGIGO, TCAN, Pioneers, XRP, FINESST, and CSSFP. This is the complete list. Domagal states that ROSES-25 has a small number of solicitations due to the compressed time schedule and budget uncertainties, all the General Observer/General Investigator program elements have been consolidated into a single solicitation in D.3 AGIGO. Other solutions that are more efficient are being considered for agencies that have sustained a broad range of partnerships with NASA.

Domagal transitioned into NASA HQ Astrophysics Division Organizational chart to provide staffing updates. He mentioned that there have been a lot of departures this year and more

departures to come soon. There is currently not an Associate Director for flight, however Peg Luce, who has tremendous expertise, is serving in that role.

Domagal concluded his presentation by mentioning and thanking the scientists and program executives for the tremendous work despite the increasing workload and emphasized the call to supporting Astrophysics, the President and the Presidents priorities, and supporting the astrophysics community.

End of Presentation.

[1:37 PM] **Committee Questions/Comments:**

- Steven Boggs raised concerns about staffing impacts at both NASA headquarters and centers, noting the loss of expertise and institutional knowledge. He asks Domagal whether these impacts are being tracked in a way that could help assess their effect on NASA science.
    - Domagal responds that they are still in the assessment phase and are considering plans to address internal staffing gaps.
- David Trilling asks if similar staffing losses are occurring across other NASA divisions.
    - Domagal confirmed that every team has lost at least one staff member. He explained that the level of concern depends on how budget uncertainties are resolved, with some scenarios posing greater risk than others.
- Alyson Brooks inquired about the status of the Pioneers mission and whether it remains on track or is in jeopardy.
    - Domagal stated that the mission is still active but acknowledged short-term concerns, especially for the TDAMM fleet. However, he expressed optimism that all areas of astrophysics within the TDAMM fleet still have strong opportunities under various future scenarios. Brooks followed up by asking about the ability of older missions to maintain communication and return data to Earth. Domagal noted that this represents a medium-term risk, not an immediate issue. He said NASA is tracking systems that may face overload within the next 3–4 years and is evaluating potential support from commercial communication providers.
- Darcy Barron also expresses concern that progress on commercial replacements and technology priorities appears stalled, with limited communication from leadership. She noted that the community lacks clarity on which technologies are being prioritized.
    - Domagal acknowledges the concern and proposed returning with updates, anticipating that progress will be made in the coming months.

- Britt Lundgren asks whether NASA is managing the mid-decadal review and what the plans are moving forward. Domagal confirmed that there is a plan in place, though progress has been slower than desired. Lundgren emphasized a strong consensus within the committee and broader community that the mid-decadal should be completed within the next year, if possible.
    - Domagal agreed that timely feedback is important and said he is open to community input, especially if there are shifts in the funding landscape. He welcomed further conversation about how best to approach such discussions.
- Barron asks how NASA is maintaining flexibility in its planning given complex timelines and the potential for programs to be zeroed out in the President's budget request.

    Domagal assures the committee that NASA is preparing programmatic plans for FY26 under multiple scenarios. He emphasized that NASA centers are being kept informed and that leadership is working to support their workforce management amid the uncertainty.

[1:55 PM] 5-Minute Break

[2:00 PM] **5.4 Mathematical and Physical Sciences (MPS) Assistant Director Greeting:**

Presenter *Dave Berkowitz, Assistant Director, NSF/MPS*
Summary: D. Berkowitz belatedly welcomed the new and returning members. He thanked the committee members for helping to advise the agencies when advisory boards are precious to the three agencies. He acknowledged one of the most exciting things in this year has been bringing Rubin online, which is a couple decadal surveys back and emphasizes the importance of pursuing fundamental science.

Berkowitz extended an invite to those who are in the neighborhood to the NSF building as they await the opportunity to have these meetings in-person/ hybrid.

Greeting ends.

[2:03 PM] **6. Vera C. Rubin Observatory: Construction to First Look and Moving into Operations**

Presenter: *Zeljko Ivezic, Director of Rubin Construction & Aaron Roodman*, *Deputy Division Director of Rubin Construction*
Summary: Ivezic explained that he will start with a high-level summary and Aaron Roodman will focus on the remaining work to end construction. He shared the Rubin observatory mission statement and summarized the mission statement in saying the data will be exquisitely calibrated and will have unprecedented accuracy and that the data sets and data products will be used not only by scientists, but by the public at large.

Ivezic shared the construction project programming updates which include:

- A working telescope and on-sky images with LSSTCam
- A projected complete construction date before end of calendar year 2025
- A healthy construction budget for the remainder of construction.

Ivezic shared that for the remainder of construction they want to focus on making the images sharper. He referenced that there are other activities that run parallel to data taking. The team is completing major components of the dome that are unfinished. He also shared a diagram that summarized where they are now with survey performance. The diagram summarizes it in two quantities, data quality on the y-axis and data quantity on the x-axis, expressed in a cumulative way for the few months of data that was collected.

Next, Ivezic identified a few things that need performance improvement such as: AOS active optics system that controls image quality, thermal control of the mirror in the dome, dome ventilation and such. Ivezic expressed that the team would exceed design performance in data quantity and be essentially consistent with requirements in data quality.

Then, images were shared of the team that installed the LSST camera, and he explained how the camera was installed and integrated. He explained that soon after the first photon night, priorities were set on obtaining First look data. It was taken very seriously, and they collected experts from all the institutions involved. Additionally, images and videos were shared from Rubin's First Look event. Rubin's First Look metrics of success were presented. Some of the results are as follows.

- Rubins First Look press conference (YouTube)- Viewed >100,000 times
- During the conference, additional broadcast from NSF Website- >100,000
- With additional streams and viewing there were over 500,000 views.
- Tens of thousands of newspapers and TV stations around the world discussed the press conference.
- NYT Science Section had 5 pages about Rubin on June 24th, 2025
- There were over 360 locations around the world that held watch parties

Ivezic concluded Rubins First Look by acknowledging it was a resounding success with world-wide visibility thanks to good planning, prioritization, and multi-institutional coordination (Rubin team, NOIRLab, AURA, SLAC, NSF, DOE).

Presentation ends.

Aaron Roodman takes over detailing the priorities for the remainder of construction.

First, Roodman went over the construction work before substantial completion and transition to operations. The timeline shared is as follows:

- In the next 3 months, there are many subsystems to complete and finalize.
- Organization of a final construction clean-up period for Sept 22-Oct 24.
- After Handover/Substantial completion there will be work to finish.
- Many recommended upgrades and installations.

Roodman focused on the commissioning. He reviewed the focus system, which uses out of focus sensors in the four corners of the focal plane that observe donuts – out of focus stars – and does an analysis of them. He showed an image which captures the real time monitoring of delivered data quality. Roodman stated that that the image quality is still being tuned up.

Then, Roodman reviewed a table that sums all the things under their control. The table shows active work to evaluate full delivered image quality budget with no fundamental challenges. He also described some results from the commissioning images taken in late May and early June. A plot shared astrometric performance, which was already close to the desired level. He stated the same is true for photometry. Roodman correspondingly discussed the team doing a set of science validation surveys, in addition to the commissioning work, both deep drilling as well as wide field of view.

Finally, Roodman reviewed the construction completeness status & plans. The plans include:

- Finishing elements of the dome (given the schedule, some elements may not be done at the handover).
- Light & wind screen: Set of screens in the opposite direction of the dome shutter to leave an 11-meter squared opening.
- Louver Actuators: The full complement will go into the operating period.

End of Presentation.

[2:36 PM] **Committee Questions/Comments:**

- Britt Lundgren asks whether the current data and image behavior aligns with expectations.
    - Ivezic responded that a team is actively reviewing images to create a training sample for future AI tools, noting some measurable but non-catastrophic systematic effects.
- Arielle Phillips sought clarification on the dome's transition to operations, to which.
    - Roodman confirmed that the budget, schedule, and handover plans are well-established.
- David Trilling inquired about the variation in full width at half maximum distribution across the focal plane.
    - Roodman explained there's no strict requirement for that variation, and when the system operates optimally, significant variation—beyond atmospheric effects—is not expected.
- Britt Lundgren asks about testing data brokers during commissioning and their role in the TDAMM ecosystem.
    - Ivezic clarified that while the brokers aren't part of the Rubin system and thus are not commissioned directly, their developers are preparing independently.

[2:45 PM] 15-Minute Break

[3:00 PM] **7. State of the Discipline, Address from AAS President**

Presenter: *Dara Norman, AAS President*

Summary: Norman started by addressing the mission of the American Astronomical Society, which is to enhance and share humanity's scientific understanding of the universe as a diverse and inclusive astronomical community. She emphasized the words enhance and share. She gave a nod to science with science highlights that included DESI: Evolving Dark Skies, Vera C. Rubin: First Look, JWST: Spectacular images, Comet 3I Atlas: Extrasolar Visitor.

Norman reviewed the demographics of the AAS committee, the charge to the committee, and details of the latest report for 2024, which she stated may not reflect the committee right now. Information was shared briefly about the survey methodology, which was done in collaboration with folks at the American Institute of Physics. The results of the survey show 1,700 people but it is reflective of the broader membership. The review of the results of the data is as follows:

- Gender: The proportion of women in the field have increased. As have the number of those who's selecting "another identity".
- Race/Ethnicity: The proportions have been largely unchanged since 2021. 5% of respondents selected multiple race/identity.
- Workplace: Government lab/research facilities are a key employer category for AAS members with PhDs. Large fraction in "other" is non- profits.
- Funding Sources: Over half of members surveyed report receiving some funding for their salaries from federal sources. Salaries are derived from an ecosystem of federal, university and philanthropic sources.

Next, Norman looked at and addressed the workforce concerns before January 2025. Some of these concerns included: job availability, research funding support, dark & quiet skies, approach to data mission, and decadal survey priority finding. She reviewed a list of Astronomy workforce concerns over the last 6-7 months which listed all the concerns as before with additional concern for the availability of jobs, cancellation of research grants, cancellation of education funding and summer research, firings at key agencies that service the community and the minimization of scientific expertise in decision making.

A survey was conducted among department chairs in Astronomy and Astrophysics departments about what they are seeing regarding the funding policy changes. In summary, 45% of the faculty members in the departments have had funds reduced or terminated since January 2025, 45% answered no and 10% said they had not seen it but are expecting to. Norman also shared results from the survey which asked about the number of first-year grad students and whether those numbers been influenced by the funding policy changes, 38% of which had enrolled fewer students. The survey also asked about summer research and professional travel, in which 29% of the department curtailed or cancelled summer research programs due to federal funding. Similarly, 29% know of faculty or students unable to travel to a professional conference because of the funding or other policy changes.

Norman concluded by putting out a call to all colleagues and the need to step up. She emphasizes the need to take responsibility and the privilege of being involved in the scientific decisions around science. Norman emphasized the need to take that seriously and ensure that if people are reaching out to be a part of proposal reviews, advisory committees, or time allocation committees, to make sure the community understands that it's a privilege and it's something that keeps everyone in the loop and informed about the science that is being done.

Norman gave thanks to the staff at NSF, NASA, and DOE and Norman recognizes NSF and its 75th year anniversary.

End of Presentation.

Chris Smith, NSF, added a comment to emphasize the need to rely even more heavily on the community going forward in terms of participation in things such as advisory committees. Chris exampled by highlighting the two new members of the committee, Cornelia Lang and David Trilling.

[3:37PM] **Committee Questions/Comments:**

- David Trilling inquired about data from NSF on the number of AST project cancellations. Smith expressed concern over the figures shared by Norman and plans to follow up for clarification, noting discrepancies between community input and reported data.
    - Norman clarified that the numbers were not from a rigorous survey and combined both cancelled and reduced funding, while Chair Britt Lundgren suggested the issue may also reflect the field's limited size.

- Lundgren asked if assistance was needed in data collection, either financially or through volunteer support.
    - Norman responded that participation was low despite broad outreach and emphasized the importance of community engagement.

- Alyson Brooks followed up with a question about whether the AAS task force remains active amid changing graduate admissions trends.
    - Norman confirmed ongoing efforts by a group focused on implementing recommendations.

- Cornelia Lang commended the efforts led by Norman and others to promote best practices for collaboration in astronomy and astrophysics, highlighting their work to make the field more inclusive.

- Trilling questioned whether recent data could distinguish between more students applying to more schools versus a larger number of applicants overall.

    - Norman encouraged reviewing the cited committee report, available on the archive, for those details.

- Dana Longcope raised concerns about the low attendance at the Anchorage meeting, noting a 70% drop.

    - Norman explained that it was a summer meeting and should be compared to the Wisconsin meeting; although SPD didn't attend, other divisions did.

- Darcy Barron asked about the significance of a generational divide around 1991 shown in data on the fraction of women in the field.
    - Norman suggested reviewing the source online for further explanation.

[3:53 PM] 7- Minute Break.

[4:00 PM] **8. Committee Business**

AAAC Reports: Past and Future; Selection of New Chair and Deputy

Britt Lundgren, Chair, invited members to raise any urgent items but proceeded with planned topics when none were brought forward. Emphasis was placed on the need to schedule future meetings as soon as possible to comply with the statutory requirement of holding four meetings per year. Lundgren highlighted the importance of reviewing last year's report to determine which recommendations still require agency feedback or further action. Additionally, a summary was provided of meetings held in May with staff from the Congressional Science Committees, during which staff expressed interest in understanding which Decadal Survey priorities are most at risk under potential future budget cuts. She noted that agencies had been asked to address responses to the committee's previous report in their morning presentations, but such responses were limited—likely due to ongoing budget uncertainty. It was recommended that these issues be more fully addressed in the next meeting, and it was noted that Shawn Goldman-Domagal, NASA, appeared willing to follow up on specific questions raised.

8.1 Discussion on LabAstro Task Force

Darcy Barron raised a question regarding the status and future direction of the Laboratory Astrophysics (Lab Astro) Task Force report. Barron requested understanding of what outcomes or next steps are envisioned for the Task Force's work and how these meetings may contribute to shaping its future direction.

Chris Smith provided an update on Lab Astro efforts, highlighting:

- **Ongoing engagement**, particularly with early-career researchers, led by a dedicated staff advocate.
- **Progress on recommendations**: A broad call for proposals is already in place, and a longstanding panel evaluates Lab Astro proposals collectively.
- **Funding limitations** prevent creation of a standalone Lab Astro program, though current structures support the field broadly.

- **Concerns** were raised (by Alyson Brooks) about the risk of too much process with limited outcomes.

Smith notes that while funding is constrained, increased visibility, early-career engagement, and improved NSF–NASA coordination mark real progress. The Lab Astro report was intentionally broad, avoiding direct requests for new programs.

8.2 Discussion on Cosmic Microwave Background (CMB-S4)

Arielle Philips raised questions about whether the major goals of the CMB-S4 initiative can still be met through existing, ongoing CMB research projects following its cancellation, or if achieving those goals would require changes to funding levels or a rethinking/retooling of current efforts.

Smith stated that existing and planned CMB projects, including upgrades, are expected to meet many key goals from the decadal survey, especially those related to inflation. The CMB-S4 team provided a strong analysis, including a viable Chile-only option, and collaborations with other major projects (e.g., SPT, BICEP, Simons Observatory). These efforts influenced the decision to cancel CMB-S4. NSF and DOE are now coordinating more closely to assess CMB efforts holistically, rather than as separate agency programs. Kathy Turner, DOE, reiterated, adding that the upgrades were not planned.

The committee along with Chris Smith (NSF), Kathy Turner (DOE), and Bryan Field (DOE), discussed the status and future planning for CMB research following the cancellation of CMB-S4, with a focus on how existing and upgraded projects can fulfill scientific goals.

- **Clarity for Recommendations**: Phillips requested more detailed information on what's needed to move forward with upgrades, so they can factor this into future recommendations. A follow-up discussion is expected.
- **Funding and Infrastructure**:
    - It was noted that while some upgrades are already funded, additional investment will still be needed, for example, in producing more detectors and extending observation time.
    - Some equipment is ready for deployment to the South Pole but is limited by infrastructure constraints (e.g., suitcase-size vs. container-size payloads).

- **Ongoing Assessment**: DOE and NSF emphasized that planning is still in progress. They are evaluating how current and planned projects can best achieve scientific goals, especially considering recent program changes.
- **Need for Coordination**:
    - A major benefit of CMB-S4 was its role in uniting separate collaborations (e.g., SPT, BICEP, Simons Observatory). Maintaining that coordinated structure is now a priority.
    - DOE and NSF are encouraging collaborative, coordinated plans across projects rather than isolated efforts.
- **Funding Outlook**:
    - Some R&D funds are being allocated at the end of the current year, but funding is not guaranteed beyond that.
    - Continued support will depend on the strength and feasibility of the coordinated plans developed by the collaborations.
- **Community Engagement**: There was an emphasis on avoiding fragmentation of efforts and ensuring that data analysis and observational strategies remain collaborative to maximize scientific return.

8.3 Discussion on Artificial Intelligence/ Machine Leaning (AI/ML) in Cosmic Frontier

Arielle Phillips asked for clarification regarding Bryan Field's earlier mention of two types of AI/ML projects. Bryan Field explained that AI/ML work in the Cosmic Frontier falls broadly into two categories:

1. Turnkey Applications:
    - These are well-established, easy-to-use tools (e.g., used in data analysis at colliders).
    - Require minimal setup and are essentially treated like standard analysis tools.
    - Encouraged as a starting point for broader adoption across the field.
2. Fundamental/Innovative Applications:

- Push the boundaries of AI/ML capabilities.
- Often led by national labs and involve novel approaches (e.g., using AI to manage detector power supplies for efficiency).
- Seen as more exploratory and less common.

Key Points:

- There is currently a gap in the "middle"—few projects fall between turnkey and fundamental.
- The DOE aims to move more researchers from basic adoption (turnkey) toward innovative uses.
- Broader adoption is important, especially as future funding and priorities will increasingly emphasize AI/ML integration.
- Even traditionally non-analytical domains (e.g., detector hardware) can find relevant AI/ML applications.

[4:32 PM] **8.4 Selection of new Chair and Deputy**

Reflections on Leadership Experience

Britt Lundgren reflected on her time as Chair:

Serving first as Deputy Chair was helpful for learning the role. Leadership involves agenda planning, coordinating with agencies (esp. NSF), writing, and engaging with Congress. Work is voluntary due to Hatch Act restrictions. Grateful for the inclusive leadership selection process. Smith notes the committee has adopted a mentorship model: Vice Chair → Chair → Post-Chair (advisory role) extending the tradition to Lundgren who accepted the invitation to serve as Post-Chair.

Selected New Co-Chairs

- **Nominees:** Darcy Barron and Alyson Brooks
- **Nominated by:** L. Arielle Phillips
- **Seconded by:** Steven Boggs and Kate Follette
- **Outcome:**
  - Unanimous approval by vote.

- Darcy Barron and Alyson Brooks are confirmed as Co-Chairs of the AAAC for the upcoming year.

New Co-Deputy Chairs Selected

- **Nominees:** Hee-Jong Seo and Cornelia Lang
- **Nominated by:** Steven Boggs
- **Seconded by:** L. Arielle Phillips

Nomination of Cornelia Lang is provisional, subject to her acceptance.

- **Outcome:**
  - Approved by majority vote, with one abstention.
  - Hee-Jong Seo confirmed as Co-Deputy Chair; Cornelia Lang pending confirmation.

Darcy Barron and Alyson Brooks will serve as Co-Chairs for the upcoming meeting cycle. Hee-Jong Seo will serve as Deputy Co-Chair alongside Cornelia Lang, pending Langs acceptance.

[4:45 PM] **8.5 Other Business**

Committee Meeting Timeline

Chris Smith, NSF, discussed the planning and structure of upcoming committee meetings required before the December 30 deadline.

Key points included:

- Four meetings are needed before the end of the year.
- The plan is to hold one meeting each in September, October, and November/December (combined due to limited availability around holidays).
- The next meeting can't occur sooner than 30 days after a decision is made, due to public notice requirements for FACA committees—placing the earliest viable window in the last two weeks of September.
- In-person meetings are logistically difficult for September and October due to funding constraints, but November or January could be feasible.

The discussion concluded with a handoff to the co-chairs to move forward with topics for upcoming meetings.

Upcoming meeting topics

AAAC Responsibilities

David Trilling asked whether the AAAC has responsibilities beyond astronomy and astrophysics, referencing NASA's Helio physics and planetary science divisions and their decadals. Committee members noted the charter allows consideration of "similar" decadals, but broadening the scope would require further discussion. A potential NSF reorganization was mentioned, but no actionable details are available.

Key Takeaway: The AAAC's primary responsibility remains astronomy and astrophysics. Any expansion to include other decadals would need a formal reassessment of the committee's charge.

Arielle Phillips suggested three main topics for inclusion in the report: the future of CMB research, the integration of AI/ML, and the strength of the scientific community. For CMB, the focus should be on clarifying what is now realistically achievable with current and planned upgrades (e.g., South Pole instrumentation) compared to what was outlined in the Decadal Survey. Uncertainty around funding and infrastructure (e.g., TDAMM, TDRSS replacements) was also noted as a critical factor.

AI and machine learning continue to emerge as major themes, both in terms of funding and ethical concerns. The committee expressed interest in bringing in expert perspectives, specifically from Brian Nord (Fermilab) and Josh Peek (STScI), to inform the report and guide discussion on responsible use.

Finally, the importance of team-building and cross-agency collaboration was emphasized as a core strength of the community. However, concerns were raised about teams being dismantled due to funding cuts. It was agreed that the report should acknowledge both the value of strong collaborations and the risks posed by unstable support.

The committee also discussed the importance of focusing on topics that are timely and ready for exploration, such as AI, which are independent of budgetary concerns. They also acknowledged ongoing challenges causing delays in progress. Certain operations—like satellite management or graduate admissions—cannot simply be paused without significant consequences.

The conversation emphasized the need to continue addressing issues, highlighting that the uncertainty surrounding these matters can be damaging even without concrete

actions being taken. The team also considered which topics could be prioritized in the short term while awaiting greater clarity on other issues.

It was suggested that once there is greater clarity regarding the budget, it may be advisable to hear from a representative of the Space Telescope Science Institute. The budget implications for their facilities are currently unknown, but they represent a significant factor influencing all the related fields.

It was also suggested that in addition to budget updates from Mitch Ambrose, an update on spectrum allocations and international regulations, which are rapidly evolving, should occur. This area should be closely monitored throughout the year.

End of Discussion.

[5:30 PM] **9. Public Comment Period**

No public comments

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10. Adjournment

Time Adjourned: 05:32 PM

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11. Next Scheduled Meeting

Date: September 26th, 2025
Time: 10 am EST – 5:30 pm EST
Location: https://nsf.zoomgov.com/webinar/register/WN_Gccx65NbTciCkOI1v5cfHw

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Certified By: Astronomy and Astrophysics Committee
Date Certified: September 26, 2025

Public Access Note

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