

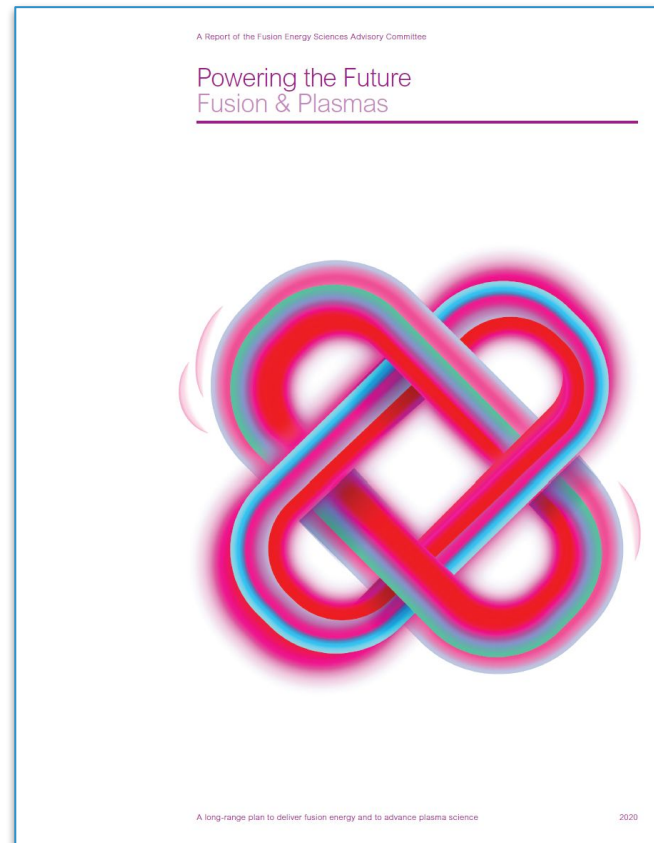
 **National Spherical Torus eXperiment Upgrade**

NSTX-U / Magnetic Fusion Science Meeting

Feb. 15, 2021

Final FESAC LRP report officially released

- “Power the Future: Fusion & Plasmas”
Available at: <https://usfusionandplasmas.org/>
- Approved unanimously by FESAC on Dec. 10 (subject to edits, now finalized in this release)
- The community is sending a unified, consistent message (NAS BP 2018 → CPP 2020 → FES-LRP 2020) to congress, OMB, DOE, and the public
 - Critical to enable continued support, new activities and growth → this is exciting!



Critical roles for NSTX-U within the FESAC Long Range Plan

- **Recommendation: Utilize research operations on DIII-D and NSTX-U, and collaborate with other world-leading facilities, to ensure that FPP design gaps are addressed in a timely manner**
 - “...advancing understanding of transport and stability physics for sustaining disruption-free, high-average power-output operation; energetic particle and burning plasma physics relevant to a high-fusion-gain FPP; and plasma-material interactions and material choices for exhaust solutions.”
 - “Areas of emphasis for NSTX-U include low aspect ratio physics, PMI control, and liquid metal PFC evaluations. A broader set of opportunities on DIII-D and NSTX-U to close key gaps in a timely fashion should be pursued when doing so proves cost effective and accelerates progress toward an FPP.”
- **Recommendation: Strengthen the innovative and transformative research program elements that offer promising future opportunities for fusion energy commercialization: stellarators, liquid metal plasma-facing components, IFE, and alternate concepts.**
 - “Development of liquid metal plasma-facing-component concepts in non-plasma test stands and existing magnetic confinement facilities should be targeted and should build on PFC concepts developed in the existing domestic program.”

Some upcoming events

- Feb. 17, 2021, [Webinar](#) release of NASEM report on “Key Goals and Innovations Needed for a U.S. Fusion Pilot Plant”
- April 19-23, 2021 (virtual), [US Transport Task Force](#)
 - March 8: deadline for plenary & contributed talks
- (???) Sherwood theory conference ???
- May 10-15, 2021 (virtual), [IAEA-FEC](#)
 - April 9, 2021: Conference “pre-prints” due
 - May 31, 2021: Nuclear Fusion manuscripts due
 - **If you haven't already, please let me know if you have results to be included in the NSTX-U Research Overview paper and poster** (talk is rapporteured)
 - Should be work that's new since FEC 2018 as published in Kaye et al. Nucl. Fusion 59, 112007 (2019): <https://doi.org/10.1088/1741-4326/ab023a>
 - **I intend to have a draft of the Nucl. Fusion paper done by March 26**
- June 21-25, 2021 (virtual), [EPS Plasma Physics Conference](#)
 - New & updated contributed abstracts deadline: Feb. 21
- Sept 6-10, 2021 (virtual), [EU-US Transport Task Force](#)

NSTX-U Team talks

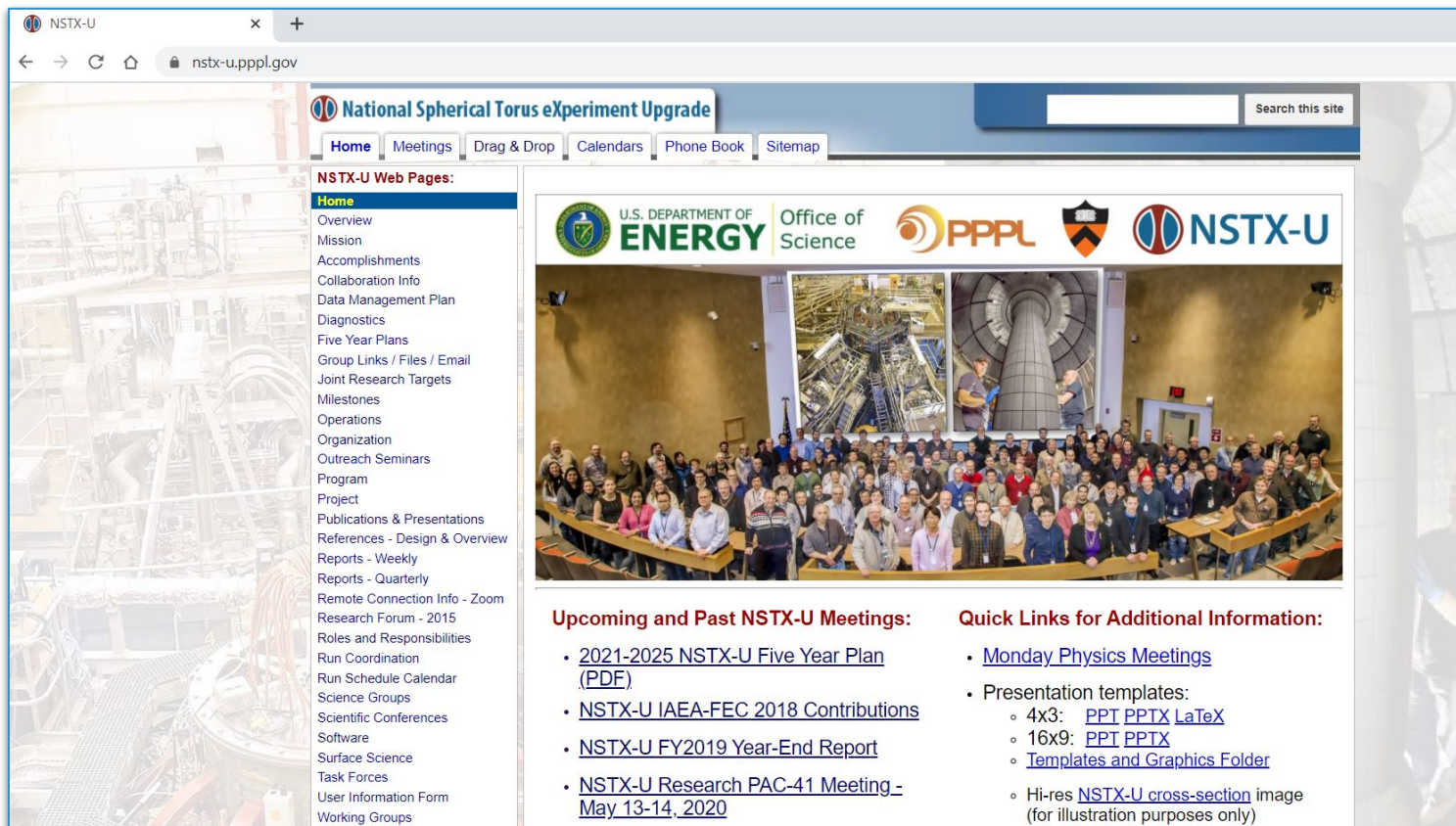
Last week (Feb. 8)

- “Executive Summary” overview of NSTX-U Five Year Plan (2021-2025)
 - Mostly highlighting “Deliverables”; see [FYP](#) document and [PAC-41 talks](#) for details
- Brief discussion of program structure, governance, science working groups → **finalizing governance, Science Working Groups, and User Group now (send any last input to Stan Kaye ASAP)**

Today and coming weeks (Feb. 15, March 1 & 8)

- NSTX-U collaborators to give ~15 minute talks on activities
- Suggested content:
 - An overview of the planned research & diagnostic activities for NSTX-U in this five year period (feel free to include progress since funding commenced)
 - Please highlight which Objective(s) and Thrust(s) from the [NSTX-U Five Year Plan](#) the research addresses
 - An estimated schedule of activities
 - Key needs or requirements, including on- and off-site personpower resources

FYI: Much information found at nstx-u.pppl.gov



The screenshot shows the NSTX-U website interface. At the top, there is a search bar and a navigation menu with links for Home, Meetings, Drag & Drop, Calendars, Phone Book, and Sitemap. Below the navigation is a large banner image of a group of people sitting at tables in a meeting room. To the left of the banner is a vertical list of links under the heading "NSTX-U Web Pages:". To the right of the banner are two columns of links: "Upcoming and Past NSTX-U Meetings:" and "Quick Links for Additional Information:". The website header includes the NSTX-U logo and the text "National Spherical Torus Experiment Upgrade".

NSTX-U Web Pages:

- Home
- Overview
- Mission
- Accomplishments
- Collaboration Info
- Data Management Plan
- Diagnostics
- Five Year Plans
- Group Links / Files / Email
- Joint Research Targets
- Milestones
- Operations
- Organization
- Outreach Seminars
- Program
- Project
- Publications & Presentations
- References - Design & Overview
- Reports - Weekly
- Reports - Quarterly
- Remote Connection Info - Zoom
- Research Forum - 2015
- Roles and Responsibilities
- Run Coordination
- Run Schedule Calendar
- Science Groups
- Scientific Conferences
- Software
- Surface Science
- Task Forces
- User Information Form
- Working Groups

Upcoming and Past NSTX-U Meetings:

- [2021-2025 NSTX-U Five Year Plan \(PDF\)](#)
- [NSTX-U IAEA-FEC 2018 Contributions](#)
- [NSTX-U FY2019 Year-End Report](#)
- [NSTX-U Research PAC-41 Meeting - May 13-14, 2020](#)

Quick Links for Additional Information:

- [Monday Physics Meetings](#)
- Presentation templates:
 - 4x3: [PPT](#) [PPTX](#) [LaTeX](#)
 - 16x9: [PPT](#) [PPTX](#)
 - [Templates and Graphics Folder](#)
 - Hi-res [NSTX-U cross-section](#) image (for illustration purposes only)

Today

Time (ET)	February 15	
1:35	Thome	Predict-first modeling and scenario development for non-inductive operation
1:50	Sabbagh	Disruption prediction and avoidance and real-time applications
2:05	Raman	Plasma current ramp-up studies in support of non-inductive scenario development
2:20	Crocker, Lin	Predictive understanding for fast ion driven instabilities and associated anomalous transport
2:35	Heidbrink, Stagner	Confined fast ion diagnostics
2:50	Wirth	Divertor thermography/spectroscopy
3:05	Unterberg	Heat flux mitigation studies

Agenda for collaborator talks

Time (ET)	February 15	March 1	March 8
1:35	Thome	Schuster	Mordijck, Fitzpatrick
1:50	Sabbagh	Kolemen	Luhmann
2:05	Raman	McKee	Allain, Koel, Woller
2:20	Crocker, Lin	Rhodes	Baek
2:35	Heidbrink, Stagner	Brower	Levinton
2:50	Wirth	Soukhanovskii	Tritz
3:05	Unterberg		