National Spherical Torus eXperiment Upgrade

NSTX-U / Magnetic Fusion Science Meeting

December 13, 2021

(1) Announcements
(2) NSTX-U updates (Kaye)
(3) Centerstack update (Gerhardt)
(4) Neoclassical transport due to resonant magnetic perturbations in DIII-D (P. Sinha)

Some upcoming events

- Dec. 12-16, 2021 (virtual), IEEE-SOFE & PPC (~~deadline: Aug. 15~~)
- Dec. 16, 2021 (virtual), INFUSE workshop

- Feb. 15-17, 2022 (virtual), US-Japan CT workshop (deadline: Feb. 1)
- April 5-8, 2022 (Santa Rosa, hopefully), US-EU TTF (deadlines: TBA)
- May 15-19, 2022 (Rochester, NY), 24th HTPD (deadlines: ~~Invited - Dec. 10~~; others - Jan. 31)
- June 12-16, 2022 (Anaheim), ANS-TOFE (deadline: Feb. 15)
  - *Send Walter (on P.C.) suggestions for invited talks (e.g. stellarator; ops/control; edge/exhaust; disruption mitigation)*
- June 12-17, 2022 (Jeju Island, South Korea), PSI-25 (deadline: ~~Dec. 7~~)
- June 20-24, 2022 (Warsaw, Poland), ISHW (deadlines: TBA)
- June 27-July 1, 2022 (Maastricht), EPS Conf. Plasma Physics (~~deadline invited: Oct. 29~~)

OMFIT NSTX-U kineticEFIT tutorial online

- From last Thursdays tutorial with Galina Avdeeva: https://www.youtube.com/watch?v=3u2L7fmq8Lw&list=PLdksEfhRAD67q1fGDlZMAYcWSO8BIhbK5&index=4

MAST-U Call for Proposals

- The second MAST-U Experimental Campaign is expected to start July, 2022
  - The internally funded portion is planned for the first four months (July - Nov)
- Proposals for the internally funded portion are being accepted until Dec 31
  - Proposals should be submitted via the online form (link)
  - MAST-U Research forum will be January, 2022
- The main objectives of MU02 are:
  - Understanding the effect of divertor magnetic configuration on SOL transport, power and particle dissipation and loads to divertor PFCs
  - Understanding the role of divertor configuration on plasma performance including H-mode access and pedestal parameters
  - Improving scenario performance towards long pulse, including error field correction and RMPs for ELM control and compatibility with detached divertors
  - Exploring fast ion instabilities, confinement, heating and current drive
- Discuss ideas for potential proposals with the responsible Topic Leaders:
  - Integrated Scenarios: Luca.Garzotti@ukaea.uk
  - Pedestal and MHD physics: Christopher.Ham@ukaea.uk Samuli.Saarelma@ukaea.uk
  - Fast Particles, Heating and Current Drive: Ken.McClements@ukaea.uk Michael.Fitzgerald@ukaea.uk
  - Exhaust Physics: James.Harrison@ukaea.uk
  - Proposals in other areas should contact James.Harrison@ukaea.uk

NSTX-U Research Annual Summary

- Planning to hold update talks in Feb/March (similar to talks this spring)
- Brief summary of research progress encompassing the entire NSTX-U Research Team
  - Progress & results addressing 5 year plan Objectives & Thrusts
  - Challenges or issues that need addressing by the Team
  - Any possible changes in research priorities (e.g. in light of NSTX-U delays and/or other developments ST-40, MAST-U, …)
- Considering a couple of formats
  - Ask for multiple individual talks from (i) collaborators + (ii) NSTX-U/PPPL milestone leads + (iii) NSTX-U/Theory Partnership activities, OR ...
  - Ask for summary from each Science Working Group → would need to to actively form SWGs now to coordinate activities and results, OR ...
  - Your ideas?
- Will announce more after the winter break