



# NIF User Group Meeting and Discussion

Maria Gatu Johnson  
MIT Plasma Science and Fusion Center

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NIF/JLF UG 2026 Meeting





## NIF UG – PI discussion and open forum

- ❑ The NIF UG Executive Committee met with NIF Discovery Science performers on Tuesday (23 participants: PIs, facility liaisons, NIF leadership).
- ❑ The PIs discussed with the executive committee and NIF leadership the status of the DS program and their ongoing experimental campaigns, as well as other topics related to facility status and upgrades.
- ❑ **~10 DS projects** provided feedback and narrated their experiences.
- ❑ We had detailed discussions on project specifics, including target design, diagnostics, and scheduling. **Several action items (AI)** came from the PI suggestions.
  - ❑ Thank you to **Dayne Fratanduno** for reporting out on progress on last year's AIs! We appreciate the facility's attention to this.



## NIF UG – PI discussion and open forum

- ❑ All the PIs **praised** the facility and its fantastic crew for all they are doing and for going **above and beyond to achieve science goals and succeed.**
- ❑ Many PIs praised their **liaison scientists** and the general enthusiasm among LLNL staff for being involved in DS projects – this is invaluable for making the program such a success.
  - ❑ PIs emphasized that recognition/support for liaison scientists is important!
  - ❑ Add liaison scientist names to list of accepted projects on website? Public abstracts should be added as well.
- ❑ A general theme was challenges with communication and ensuring PIs have access to all the right information at the right time. There are many avenues for this (user office web page, liaison scientists, user office staff)
  - ❑ There was a suggestion to assemble additional information on the capabilities of NIF for the PIs
  - ❑ The idea of a ‘crash course’ or boot camp was brought up again
  - ❑ Proposal to maintain an up-to-date list of contacts for different types of questions



# NIF UG – PI discussion and open forum

- Information for new users can be found on [lasers.llnl.gov/for-users](https://lasers.llnl.gov/for-users)
- Megan Francisco** is the first resource after the proposal is accepted

lasers.llnl.gov/for-users

BRN 2024 (L) Adobe Acrobat

An official website of the United States government [Here's how you know](#)

NATIONAL IGNITION FACILITY & PHOTON SCIENCE

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NIF Users [Home](#) / NIF Users

**NIF Users**

- NIF User Portal
- NIF User Guide
- NIF DLI User Guide
- Experimental Capabilities
- Shot RI Resources**
- Call for Proposals
- Prior Year Awards
- NIF User Group
- NIF Calendar
- Target Shot Metrics
- Conflict of Interest Policy
- Jupiter Laser Facility

**NIF AND JUPITER USER GROUPS MEETING 2026**

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- Student Support
- Organizing Committee
- Agenda

**NIF Users**

**Research Opportunities at the National Ignition Facility**

The National Ignition Facility provides the scientific community with an unprecedented capability for studying materials at extreme pressures, temperatures, and densities. NIF is expected to achieve temperatures and densities almost an order of magnitude greater than those in the sun's core and pressures far in excess of those at the core of Jupiter. The density of neutrons during the tens of picoseconds the NIF target undergoes ignition is expected to be  $10^{23}$  per cubic centimeter.

NIF experiments allow the study of physical processes at temperatures approaching 100 million kelvins, radiation temperatures of more than 3.5 million kelvins, densities greater than  $1,000 \text{ g/cm}^3$  and pressures of more than 100 billion atmospheres. These conditions have never been created in a laboratory environment and exist naturally only during thermonuclear burn, in supernovae and in the fusion reactions that power our stars.

The NIF User Group includes researchers from the U.S. Department of Energy's national laboratories, international fusion energy researchers, scientists from academia, and other national and international users. A broad external user community is an important element of NIF operations. We invite interested researchers and scientists to integrate NIF's experimental capabilities into their research programs and to actively engage on the science use of NIF.

Scientists planning NIF experiments may also wish to consider preparatory experiments at Lawrence Livermore National Laboratory's [Jupiter Laser Facility](#) and other laser facilities across the National Nuclear Security Administration complex. The combination of NIF and Jupiter represents the most sophisticated, energetic, and diverse set of high-energy-density science

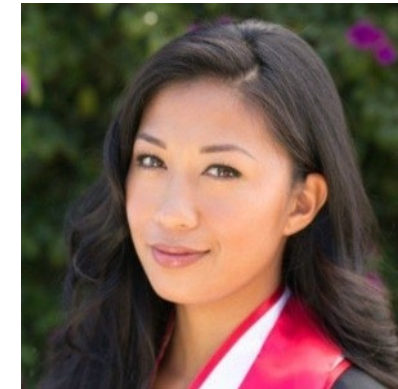
*A meeting of the NIF User Group*

**Shot RI Resources**

|  |  |
|--|--|
| <p><b>NIF Facility</b></p> <ul style="list-style-type: none"> <li><a href="#">Download User Guide</a></li> <li><a href="#">Brown Bag Charts</a></li> <li><a href="#">TCC Configuration Requirements</a></li> <li><a href="#">What's New at NIF</a></li> <li><a href="#">ARC Performance Capabilities</a></li> <li><a href="#">Phase Plates Table</a></li> <li><a href="#">Beam Port Coordinates</a></li> </ul> | <p><b>NIF Diagnostics</b></p> <ul style="list-style-type: none"> <li><a href="#">Framing Camera Sensitivities</a></li> <li><a href="#">Gated Imager Orientation at NIF</a></li> <li><a href="#">Image Plate Scan Parameters</a></li> <li><a href="#">Introduction to NIF Data Trends Tool</a> <ul style="list-style-type: none"> <li>NIF Data Trends Tool</li> </ul> </li> </ul> |
| <p><b>Targets/Cryogenic Ops.</b></p> <ul style="list-style-type: none"> <li><a href="#">Layered Target Primer</a></li> <li><a href="#">Introduction to NIF Gas Pressure Calculator (Mac Version - PC Version)</a></li> </ul>   | <p><b>NIF Documents</b></p> <ul style="list-style-type: none"> <li><a href="#">NIF Contact List</a></li> <li><a href="#">NIF Forums</a></li> </ul> <p><b>Shot RI Training Presentations</b></p> <ul style="list-style-type: none"> <li><a href="#">Presentations</a></li> </ul>  |
| <p><b>Information Systems and Tools</b></p> <ul style="list-style-type: none"> <li><a href="#">Shot Setup Tool: The Basics</a></li> <li><a href="#">Optics Estimator Instructions</a></li> <li><a href="#">Optics Estimator - Per Beam</a></li> <li><a href="#">Optics Estimator - Full NIF Equivalent</a></li> </ul>  |  |

**For further information on scientific opportunities at the NIF, please contact:**

NIF User Office  
 PHONE: (925) 422-2179  
[nifuseroffice@llnl.gov](mailto:nifuseroffice@llnl.gov)





# NIF UG – PI discussion and open forum

**2026 AI 1:** Add liaison scientist names and public project abstracts with list of accepted projects on NIF user website

**2026 AI 2:** Enable fielding 2 x magnetized shots back-to-back (close in time)

**2026 AI 3:** Add a pre-fire system to allow higher laser energy use on magnetized shots

**2026 AI 4:** Find ways to minimize time penalty from exchanging phase plates

**2026 AI 5:** Request for facility shots to develop OTS capability to measure different plasma conditions with snout that would change aperture

**2026 AI 6:** Log growth limits on DS shots places limits on doable science – keep discussion going on a case-by-case basis on how to handle this

**2026 AI 7:** Improve initial “training”/information for new PIs (e.g., crash course, condensed user guide, etc); this would reduce load on liaison scientists



# NIF UG – PI discussion and open forum

**2025 AI 1:** Long term, 5 $\omega$  OTS would allow probing at substantially higher density and should remain a goal.

**2025 AI 2:** Improve process for getting access to spectroscopy data from shots.

**2025 AI 3:** Request to the facility to extend overall pulse shape window to allow backlighter probing >100ns after the initial laser drive.

**2025 AI 4:** Access to data for crystal defects/improved simulations for when crystals are at risk to avoid having to run crystals with defects.

**2025 AI 5:** Request that facility streamline process for review of max credible yield memo.

**2025 AI 6:** More rapid turnaround of hGXD film scans.

**2025 AI 7:** (Renewed) request to the facility to ensure all data goes on the archive.

**2025 AI 8:** See what it would take to implement pre-fire mitigation that was partially designed for cold B-field that was stood down – do resources exist to do this for warm B-field shots?

**2025 AI 9:** Ensure bang time can be measured on shots (maybe by making diagnostic option information available)?



# NIF UG – PI discussion and open forum

## Interest in new capabilities

- ❑ A Temporally resolved x-ray spectrometer was highlighted in 2025 as a user need: this is now available, developed with a director's reserve shot!
- ❑ Gas-jet – Many users of OMEGA have utilized the gas jet. Please let us know if you have a DS experiment idea that would require a gas jet so the facility can assess interest.
- ❑ Facility is encouraging submission of ideas – if there are synergies with broader program, it is more feasible

**Are there other things the community would like to see?**



# NIF UG – PI discussion and open forum

## Use of ignition for discovery science?

- ❑ It is highly unlikely that ignition shots will be allocated directly for DS over the next few years
- ❑ Users should look for ride along opportunities/synergies!





# NIF UG – PI discussion and open forum

## Shot allocations

- ❑ DS allocation nominally 18 shots per year per the facility use plan
- ❑ With sustainment, we should expect a 10% drop in the number of shots across all programs over a 4-year period
  - ❑ 16 shots being scheduled for FY27
  - ❑ Also have to manage delays and deferrals

| Shot days | proposals |           | schedule process |      |
|-----------|-----------|-----------|------------------|------|
|           | FY        | Days      | Days             | Days |
|           | Awarded   | Scheduled | Completed        |      |
| 2013      |           |           |                  |      |
| 2014      | 27        |           |                  |      |
| 2015      | 18        |           |                  |      |
| 2016      | 18        | 18        |                  | 16   |
| 2017      | 18        | 18        |                  | 19   |
| 2018      | 18        | 18        |                  | 17.5 |
| 2019      | 18        | 18        |                  | 18.5 |
| 2020      | 15        | 18        |                  | 13.5 |
| 2021      | 16        | 18        |                  | 14   |
| 2022      | 17        | 18        |                  | 16.5 |
| 2023      | 14        | 18        |                  | 15   |
| 2024      | 14        | 18        |                  | 16   |
| 2025      |           |           | 18               | 12   |
| 2026      |           |           | 18               |      |

| FY    | Total shots | DS shots | Fraction |
|-------|-------------|----------|----------|
| 2013  | 208         | 7        | 0.03     |
| 2014  | 191         | 8        | 0.04     |
| 2015  | 357         | 44       | 0.12     |
| 2016  | 417         | 38       | 0.09     |
| 2017  | 408         | 47       | 0.12     |
| 2018  | 393         | 41       | 0.10     |
| 2019  | 385         | 39       | 0.10     |
| 2020  | 325         | 39       | 0.12     |
| 2021  | 368         | 33       | 0.09     |
| 2022  | 364         | 38       | 0.10     |
| 2023  | 311         | 35       | 0.11     |
| 2024  | 315         | 36       | 0.11     |
| 2025  | 277         | 27       | 0.10     |
| Total | 4319        | 432      | 0.10     |

**Comments or questions?**

# NIF UG - next item of business



Thank you all for participating in the NIF UG elections, your vote matters.

We welcome

- ❑ Dr. Lauren Hobbs (AWE)
- ❑ Dr. Brian Appelbe (Imperial College)
- ❑ Dr. Adam Harvey-Thompson (SNL)



to the Executive Committee!

- ❑ Thank you to all the folks that ran, making our election a nail biter!
- ❑ Thank you, **Annie Kritcher, Charlotte Palmer and Natsumi Iwata** for all your hard work!
- ❑ Thanks to **Will Fox** for running the elections.



# NIF UG - next item of business



A list of ExCom members and bylaws can be found on [lasers.llnl.gov/for-users](https://lasers.llnl.gov/for-users)

The screenshot shows the NIF Executive Board page. At the top, there is a navigation bar with the NIF logo and the text 'NATIONAL IGNITION FACILITY & PHOTON SCIENCE'. Below this is a breadcrumb trail: 'Home / Executive Board'. The main content area is titled 'Executive Board' and lists the following members:

- [Dr. Maria Gatu Johnson](#) (Chair)  
Massachusetts Institute of Technology
- [Dr. Danae Polsin](#) (Vice-Chair)  
Laboratory for Laser Energetics, University of Rochester
- [Prof. Louise Willingale](#) (Past Chair)  
University of Michigan
- [Dr. Tilo Doeppner](#) (Facility Liaison)  
Lawrence Livermore National Laboratory
- [Dr. Mario Manuel](#)  
General Atomics
- [Dr. Charlotte Palmer](#)  
Queen's University Belfast
- [Dr. Natsumi Iwata](#)  
Osaka University, Japan
- [Dr. Annie Kritcher](#)  
Lawrence Livermore National Laboratory
- [Dr. Graeme Sutcliffe](#)  
Lawrence Livermore National Laboratory
- [Dr. Marion Hammond](#)

On the left side of the page, there is a sidebar menu with the following items:

- NIF User Portal
- NIF User Guide
- NIF DLI User Guide
- Experimental Capabilities
- Shot RI Resources
- Call for Proposals
- Prior Year Awards
- NIF User Group**
  - Bylaws
  - Executive Board**
- NIF Calendar
- Target Shot Metrics
- Conflict of Interest Policy
- Jupiter Laser Facility

At the bottom of the page, there is a section titled 'MEETINGS/WORKSHOPS' with a link to 'NIF and Jupiter User Group Meeting'.

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Lawrence Livermore National Laboratory

[Dr. Marion Hammond](#)  
CNRS

[Prof. Will Fox](#)  
University of Maryland

[Prof. Eleanor Tubman](#)  
University of California, Berkeley

[Dr. Arianna Gleason](#)  
SLAC National Accelerator Laboratory

# Acknowledgements



Thanks to **Terri Stone!**

Thanks to **Danae Polsin** for running and organizing the poster session and **all our wonderful poster judges** (you know who you are!).

Thank you all for a successful NIF/JLF UG Meeting!



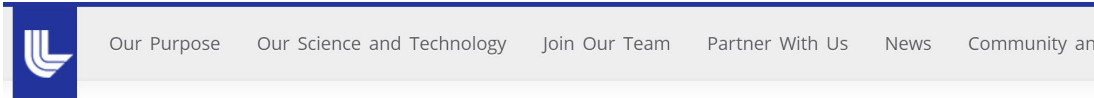
A special, huge **THANK YOU** to **Dayne Fratanduono**, his predecessor **Kevin Fournier** and the team in the **NIF User Office: Rachel Ghilarducci, Katlyn Pico, and Katie Mathisen**, and to **Jenella Presley and Cheryll Nunez (audio/visual)**, who made this meeting a reality! You are amazing!

**Reminder: there is an open NIF User Director posting**

# There is a new podcast about NIF discovery science!



<https://www.llnl.gov/article/54041/big-ideas-lab-podcast-learns-create-supernova-earth>



[Back](#)

## The Big Ideas Lab podcast learns to create a supernova on Earth



[\(Download Image\)](#)

Learn how scientists use the National Ignition Facility to study astrophysical phenomena, like supernovas and the center of giant planets. Listen on [iPod](#) or [Spotify](#).

