

NIF User Group Executive Committee Outbrief to NIF Management

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NIF/JLF UG 2025 Meeting





NIF UG – PI discussion and open forum

- ❑ The NIF UG Executive Committee met with NIF Discovery Science performers on Wednesday (~20 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, ranging from target design, data access and analysis, diagnostics, and scheduling. **Several action items (AI)** came from the PI suggestions.



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.**
- ❑ We note that Kevin Fournier and his NIF User Office team does much of the interface work – **Dan Kalantar** in particular was called out for participating in meetings and helping solve problems/catch issues at an early stage. Thank you!
- ❑ 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.
- ❑ A general theme was challenges to get access to shot data in a timely manner after a shot.



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Renewed Action Item - OTS

Past AI: Continue the support of OTS, both 3 and 5 ω , and ultimately make it a fully commissioned capability for DS. There is strong community support for this diagnostic.

Status:

- We heard that 3 ω Thomson is performing well for DS PIs.
- Careful design changes may allow many programs to use this capability while 5 ω is still on hold – don't delay campaigns waiting for 5 ω !

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



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Renewed Action Item – data release

Past AI: NIF UO should work with PIs to reduce DC load by suggesting target modifications to ensure spec. data are born unclassified (as DS data are). Keep DS data processing high-priority and assess in advance the need for review. Train and engage more DCs if possible.

Status:

- Several teams reported challenges/delays in having their spectroscopy data declassified.
- Key people have retired, working to get new people trained.
- Still makes sense to work to design experiment to have data *born* unclassified.

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



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New Action Item – extended beam delay

- ❑ Programs reported challenges in achieving sufficient delay between main laser drive and backlighter; require > 100 ns delay to meet goals.
- ❑ Currently, overall pulse shape has to fall within 100 ns.
- ❑ Tested at 200 ns but machine safety has not been evaluated.

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



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New Action Item – crystal defects

- ❑ Programs have had to field poor quality crystals with many defects to avoid risk of damaging high-quality crystals with predicted debris.
- ❑ Need access to crystal defect characterization information to allow interpretation of data.
- ❑ Damage risk appears overestimated – improved simulations may allow for defect-free crystals to be run in the first place.

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.



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New Action Item – max cred yield memo

- ❑ Requirements for producing the max credible yield memo required to field shots at the NIF reported to have become more burdensome.
- ❑ New memos needed for every experimental change, which wasn't necessary before.

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



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New/Renewed Action Item – film scan uploads

- ❑ Discussion about hGXD film scans taking too long to get back (can take four weeks).
- ❑ Once film scans are completed, data automatically gets loaded into the archive.
- ❑ This relates to – but is distinct from - an action item from last year about the need to make RCF and CR-39 scan data available on the archive; these are not automatically uploaded.

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.



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New Action Item – laser pulser for B-field shots

- ❑ Laser energy on magnetized experiments is limited due to the lack of a pulser.
- ❑ A cryo pulser project was initiated but paused two years ago due to shifting priorities (expensive system).
- ❑ Question from PIs: could we revive this project for warm experiments only (not cryo)?

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?



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New Action Item – bang times

- ❑ Request from PI: bang time is essential information for many experiments.
- ❑ Cannot currently be provided by nTOF – can we make this happen?
- ❑ Comment: pTOF diagnostic can provide nuclear bang time on shots with DD or DT yield $\sim 1e9 - 1e15$, GRH at higher DT yields.

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



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Notes from last year: action item follow up

- ❑ 2024 Action Item 2: Recommend the facility create a user accessible database of the typical flat field background conditions for typical DS conditions.
 - ❑ *Responsibility of the instrument specialists*

- ❑ 2024 Action Item 3: Recommend updating and enhancing information about DS projects on the Discovery Science Webpages.
 - ❑ *This has not yet happened; one option can be to add public abstracts.*

- ❑ 2024 Action Item 4: Consider arranging an RI “bootcamp” or short summary presentation on RI overview.
 - ❑ *Kevin reported on recent changes to the RI training process.*

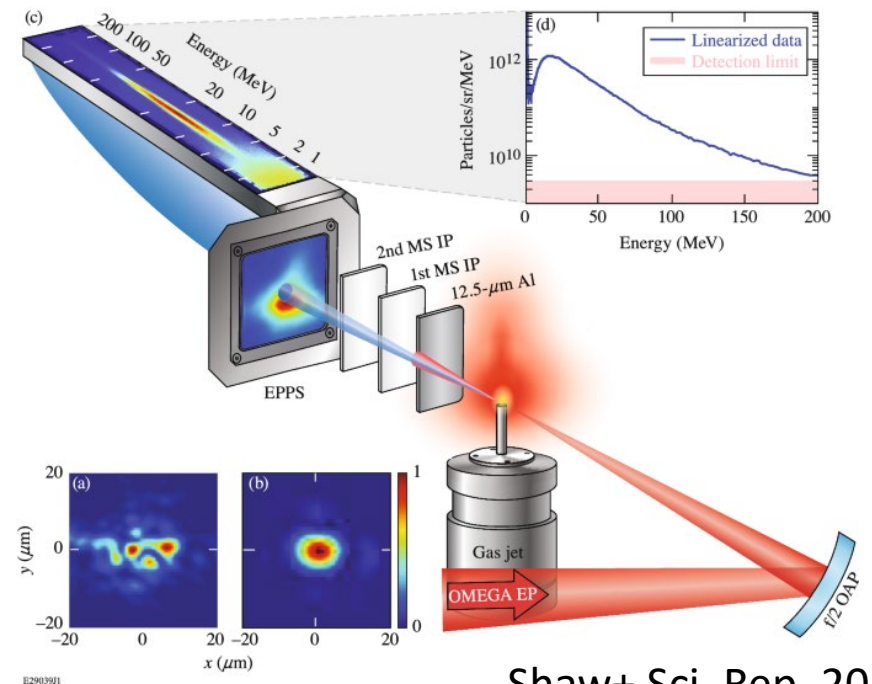


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Notes from last year: interest in new capabilities

- Temporally resolved x-ray spectrometer
- Gas-jet – Many users of OMEGA have utilized the gas jet. Please let us know if you have a DS experiment that would require a gas jet so the facility can assess interest.

Are there other things the community would like to see?





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Discussion

- ❑ DS allocation currently 18 shots per year
- ❑ With the upcoming sustainment, we should expect a 10% drop in the number of shots across all programs over a 4-year period
- ❑ Larger number of posters presented at the meeting this year; worked well with removal of back wall during poster sessions

Comments or questions?

NIF UG - next item of business



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

We welcome

- Prof. Will Fox (U. Maryland)
- Prof. Ellie Tubman (U.C. Berkeley)
- Dr. Arianna Gleason (SLAC)
- Dr. Graeme Sutcliffe (LLNL)

to the Executive Committee!

- Thank you to all the folks that ran, making our election a nail biter!
- Thank you, **Mathieu Bailly-Grandvaux**, **Stephanie Hansen**, **Heath LeFevre** and **Louise Willingale** for all your hard work!
- Thanks to **Mathieu** for running the elections.

[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. Maylis Doziere-Aybar](#)
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](#)
CNRS

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

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

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

Acknowledgements



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

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



A special, huge **THANK YOU** to **Kevin Fournier** and his team in the **NIF User Office: Rachel Ghilarducci, AJ Salaices, Chalena Ramirez, and Katie Mathisen,** and to **Jesse Davis and Don Harrison (audio/visual)**, who made this meeting a reality! You are amazing!