# Beam Delivery Update

Martin Alcorta

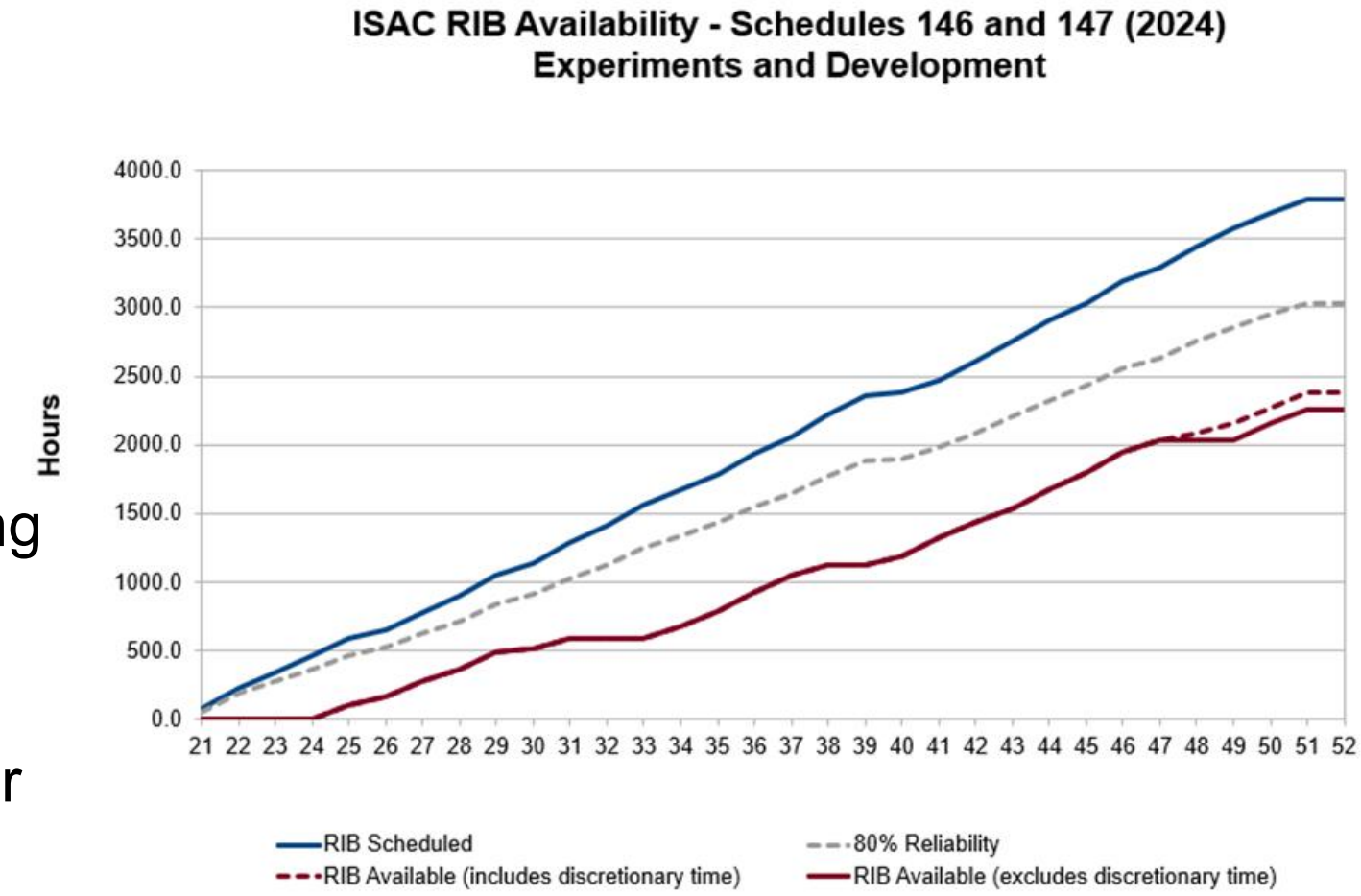
Science Week 2025

# Outline

- Beam delivery statistics for 2024
- Update on beam development
- Update on user survey
- Scheduling in the ARIEL era

# 2024 Beam Delivery

- **Sources of downtime:**
  - Cyclotron late startup RF
  - TiC FEBIAD failure
  - UC IGLIS end 2024 low yields
- **Highlights**
  - Successful delivery of $^{26}$Al using TM3 @ 53 kV
  - IGLIS at the start of 2025 performed well, will run another IGLIS (Ta) end of 2025



# 2025 Beam Schedule

- Mitigation of consequences to graduation timelines
- Equity between local NSERC-supported facilities/groups
- High-priority EEC-endorsed science

RIB shifts requested = 886
(7,088 hrs, c.f. ~3,000 hr capacity)

| Number | Target Type |
|---|---|
| 3 | Ucx (1 IGLIS) |
| 3 | Ta (1 IGLIS) |
| 2 | SiC (1 FEBIAD) |
| 1 | Graphite |
| 1 | TiC |

*Thanks C. Ruiz*

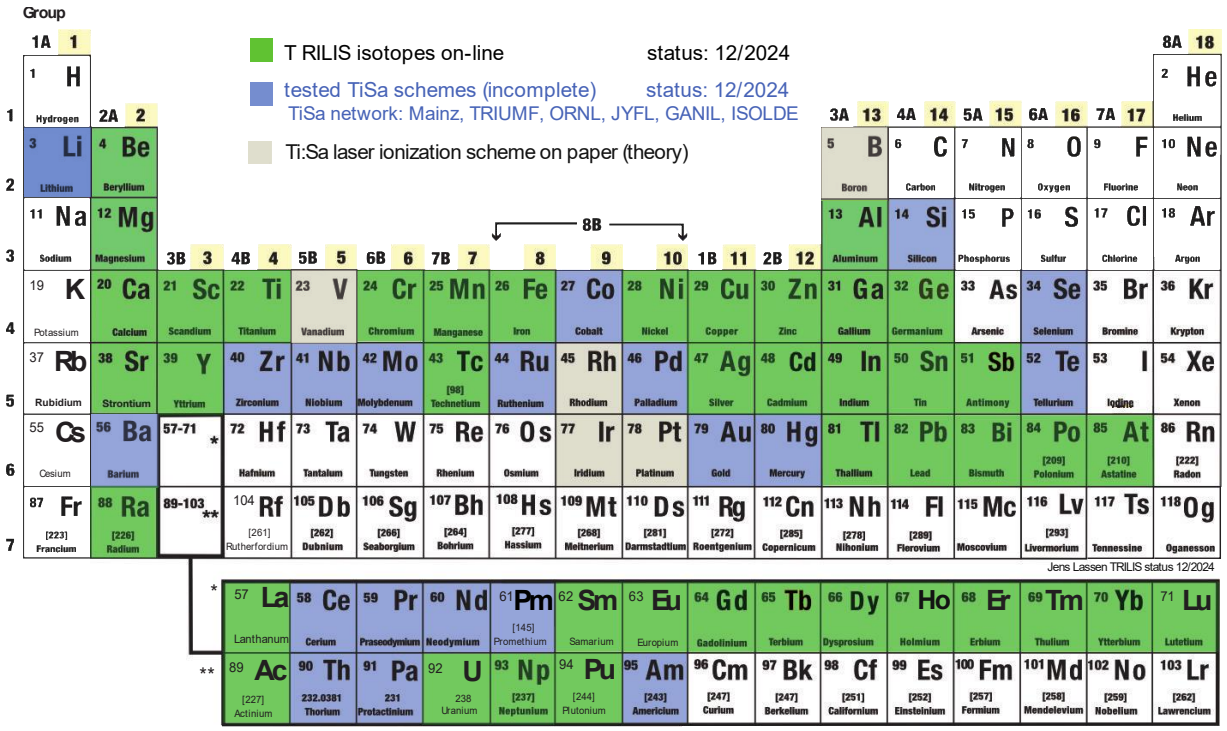
# Beam Development

**Reminder of our beam development process**

- Priority determined by NP collaborations at the start of each year
  - List top 5 for each (chosen from EEC approved LOIs)
- Inform spokespersons when development scheduled and of results after development
- Work on streamlining this process in preparation for 2027

# Beam Development

- Optical target temperature measurement (A. Laxdal)
- TRILIS: Co ready to go on-line
- IG-LIS now available for ITE **& ITW**
- Polarizer
  - cw-TiSa ring laser frequency quadrupled to 216 nm for At and Cu collinear spectroscopy
- Machine development for ISAC
  - O. Shelbaya's presentation yesterday

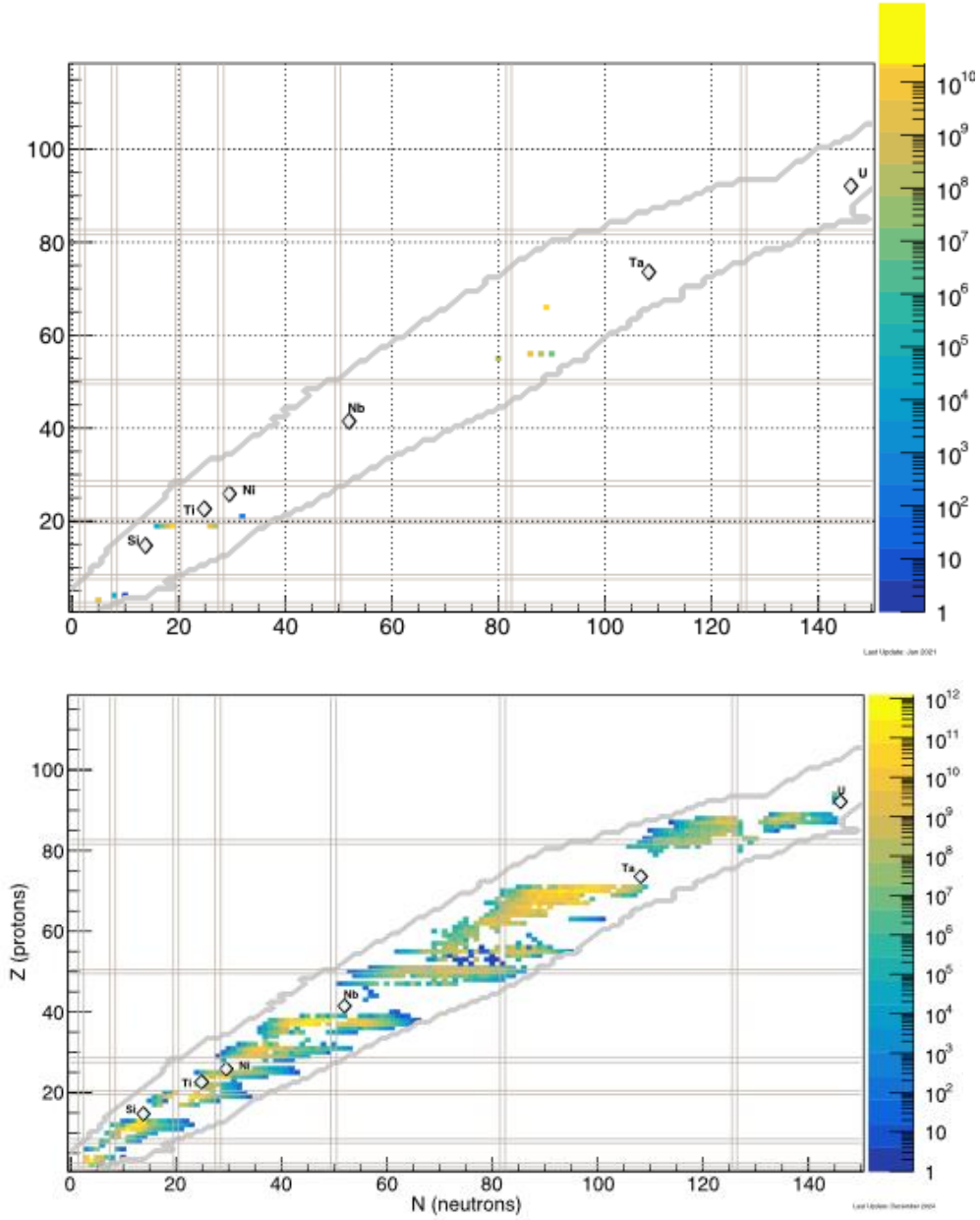



*Thanks J. Lassen & P. Kunz*

# Beam Development - Yields

- Thin (25um) Ta foil target – for quick release of short-lived isotopes
  - $^{12,14}$Be yields improved (A. Laxdal presentation yesterday)
- Improved yields from TiC target with the new graphite insert design
- Reliable operation of C targets for $^{8}$Li and $^{7}$Be delivery
- Neutron rich Cu isotope yields (from UCx) planned for 2025
- Hardware & software overhaul of yield database

*Thanks J. Lassen & P. Kunz*



# User Beam Time Satisfaction Survey

- As of summer 2024, new user survey introduced to ensure relevance, questions based on input from beam delivery, beam physics, TIS, and operations
  - Focus on quality of beam delivery
  - Want to know where room for improvement
- Representatives from above groups have direct access to the results for faster response time
- Received 12 responses from users after new survey rollout in 2024
  - *Working with IT to recover results; automatic survey email tentatively paused*

# Scheduling in the ARIEL era

- ARIEL schedule will be more rigid (*factory mode*)
  - Will require clear communication, coordination, and planning among many groups
- Fit experiments to the schedule, not vice-versa
  - Allocate fixed increment time periods to an experiment
  - May restrict setup shifts b/w experiments to certain shifts, possibly adding buffers to experiments (e.g. beam dev if required)
- Changes to beam development scheduling
  - Options to have fixed beam development targets or fixed periods at beginning/end of production target

| Week | Exchange |
|---|---|
| 1 | ITE |
| 2 | APTW |
| 3 | AETE |
| 4 | ITW |
| 5 | APTW |
| 6 | AETE |
| 7 | ITE |
| 8 | APTW |
| 9 | AETE |
| 10 | ITW |
| 11 | APTW |

Operational Model for ARIEL, Doc#129655

# Scheduling in the ARIEL era

- Aim to reduce overhead for experiments
  - Combine specific facility configurations beam requests to reduce frequency of changes withing experimental facilities
- Updated scheduling application
  - Working group with members of Science Division and Accelerator Division currently defining requirements for beam scheduling application
  - Will aim to link scheduling application with EEC proposals application

# Avenues of Communication

- Beam delivery mailing list
  - updates on major beam delivery issues. Sign up at lists.triumf.ca
- User newsletter
  - for updates on general activities
- Science week
- TUG email list
- Emailing RIBdev@triumf.ca
  - to discuss any questions about beam development
- ISAC User Beamtime Feedback

# Summary

- Beam development ongoing on several fronts
- Several methods of communication open to users who have questions or want to collaborate
- Scheduling of future beamtimes will be revamped in preparation of ARIEL era
- **We want to maximize the probability of success for every experiment**

TRIUMF

# Thank you
# Merci

**www.triumf.ca**

Follow us **@TRIUMFLab**