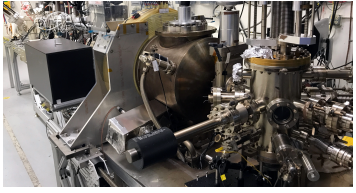
LD2501 FY25 Q1 report: A high-intensity, polarized-beam prototype photogun for the Ce⁺BAF positron source — Objectives and progress

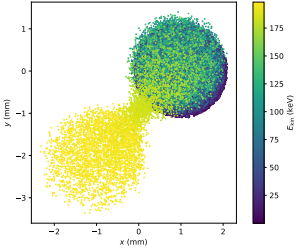
GTS status:

- facility restarted; first electron-beam tests with existing laser successful
- beam authorization ceased, but about to resume
- preparation chamber modifications for NEA GaAs mostly done



Ion-tracking simulations:

- GTS gun field map integrated in GPT lifetime model
- CST gun model has minor inaccuracies, improvements in progress



Q1 milestone mostly achieved; next: finish simulations of lifetime scaling with updated CST model

780 nm laser system:

- parameters specified; preliminary system design done
- ≥ 1 W c.w. power, RF-pulsed laser amplifier, high-contrast macropulse generator, virtual-cathode camera, transverse profile shaping, x/y steering, new laser table at gun
- communication with vendors in progress, PR expected within a month

Q2 objective: install laser, commission with beam — on track

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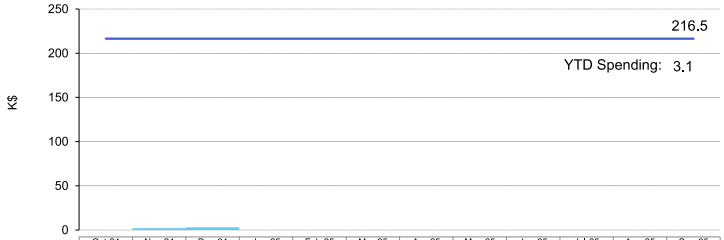
Underspending due to slightly delayed procurement and lack of machine time:

- laser procurement and installation (≈ $50k total): to happen in Q2
- loss of beam authorization: minimal commissioning so far, more to happen in Q2

Budget for prep chamber modifications has not been needed:

- Vacuum work has already been performed for a different project in the meantime
- saves us ≈ $5k of M & S and $15k of labor



	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25
YTD Spending	0.000	1.998	3.081	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pending	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Open Obligations	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Expenses	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Labor	0.000	1.998	3.081	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Funding	216.5	216.5	216.5	216.5	216.5	216.5	216.5	216.5	216.5	216.5	216.5	216.5

Jefferson Lab