



PM meeting (mainly the slides from the OHEP call)

3/23/2023

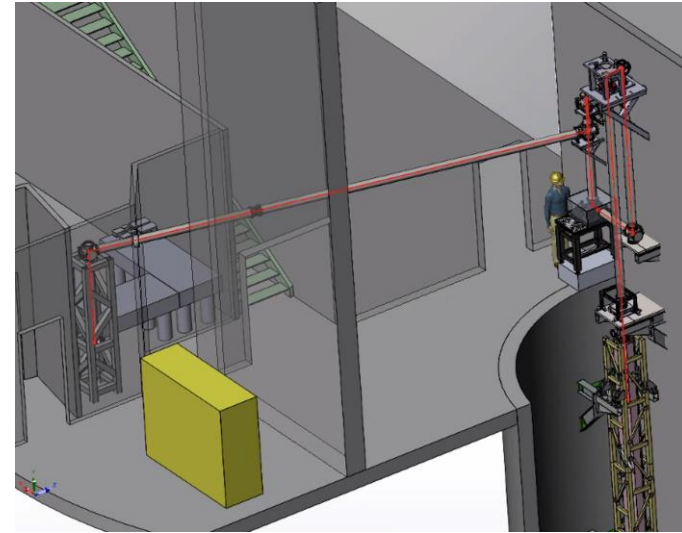
Updates since last meeting

- Laser lab PO is assigned
- Other updates from Linda or Mandy ...

- Status reporting nearly in
 - Request went out more than a week ago
 - Will be reported against our Dec-2022 schedule, including logic changes
- Expert help assigned to work with us (Peter Wilson)
 - Started regular meeting, going through EVM and reporting, BOE management, contingency, how to reduce risk in commissioning phase with testing, intermediate milestones
 - Review of ongoing task list to keep on target for completing baseline and moving through the “PD” process

Schedule work underway

- Major focus has been working through a final review and update to our installation schedule before freezing everything by the end of the month.
- Activities and relationships easier to understand (critical path example next slide)
- Better partitioning of installation work between laser lab, ground level, and in (or above) shaft
- This week:
 - Resources are being reviewed
 - Expect status reporting for Jan/Feb 2023 complete and compared against Dec 2022 schedule



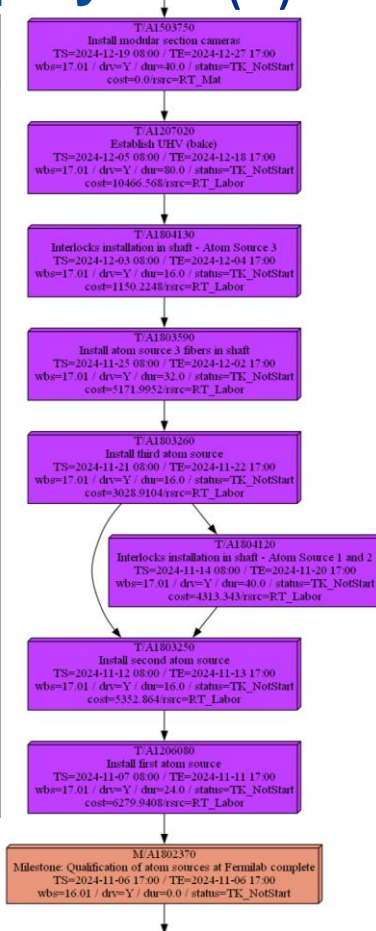
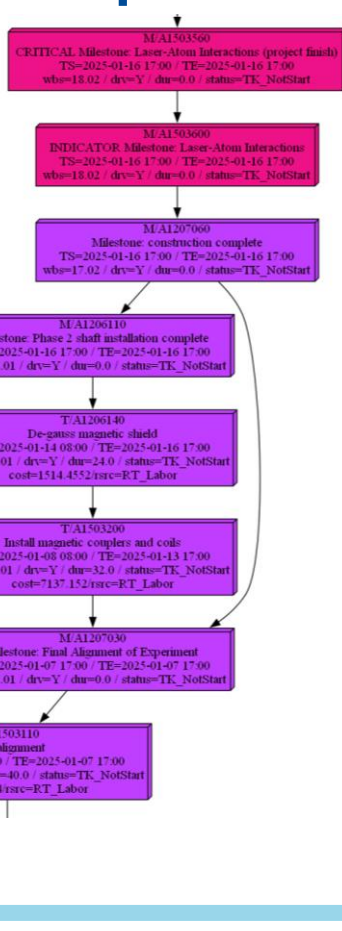
Latest estimate of completion

- Last column includes latest updates to installation sequence.
- Completion date of 1/16/2025 is still in our estimated range of first half of FY25
- Awaiting current status reporting

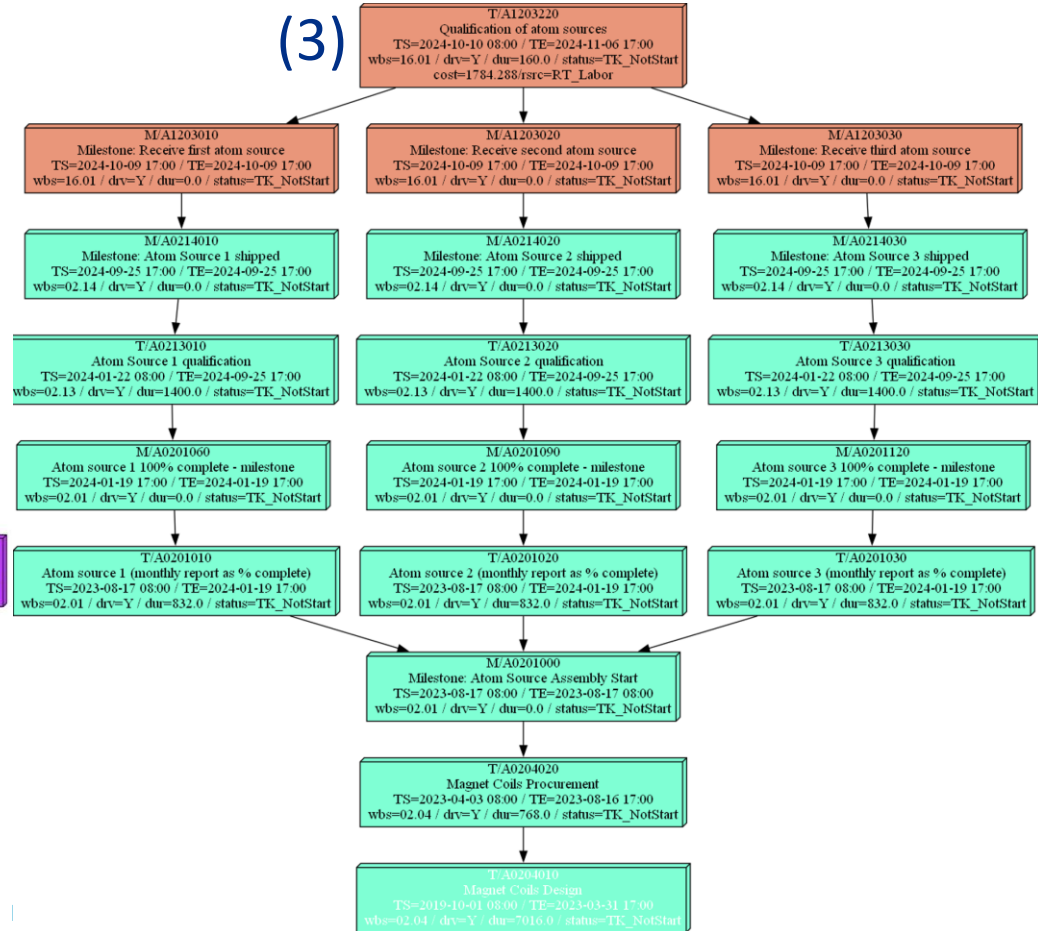
		Corrected August 2022 update	First review of Dec 2022 update	Dec 2022 including revised in-shaft installation sequencing
	Milestone comparisons for various schedules	12/16/2022	1/25/2023	3/17/2023
	<i>Analysis date</i>			
Activity ID	Critical milestones			
A1503500	Civil design complete	4/12/2023	6/5/2023	6/5/2023
A1503520	Shaft modular section installation complete	5/15/2024	9/12/2024	9/5/2024
A1503530	Two atom sources installed	6/26/2024	11/13/2024	11/13/2024
A1503540	First laser beam	7/15/2024	12/3/2024	10/16/2024
A1803240	First atoms	7/17/2024	12/5/2024	12/18/2024
A1503560	Laser-atom interactions	8/7/2024	12/30/2024	1/16/2025
	Other milestones			
A1503280	Adjustable Supports designs complete - milestone	12/29/2022	5/23/2023	5/23/2023
A1503760	Milestone - laser room construction complete	2/27/2023	6/6/2023	12/7/2023
A1503220	Installation of LTS complete - milestone	11/30/2023	2/1/2024	9/26/2024
A1503770	Milestone - Inst of structural systems (shaft) complete	2/20/2024	5/1/2024	6/6/2024
A1503780	Milestone - Assembly of 17 modular sections complete	5/13/2024	9/10/2024	8/19/2024
A1206100	Phase 1 shaft installation complete - milestone	5/15/2024	9/12/2024	9/5/2024
A1206110	Phase 2 shaft installation complete - milestone	7/12/2024	12/2/2024	1/16/2025
A1207060	Construction complete - milestone	8/7/2024	12/30/2024	1/16/2025

Critical path display (2)

(1)



(3)



Contingency

- Risks moving to lab-wide risk registry
 - In the data entry phase
 - Goal is to be finished by end of this week
- BOE update
 - Estimate Uncertainties now applied to all activities in BOE
 - Integrating with P6
 - Meetings in progress to check resources, which will feed back to the schedule
 - Utilize the BCR process, keep costs down as much as possible

✓	Edit	RI-ID	Title	Project	Summary	Risk Type	Risk Area (RBS)	Owner	WBS / Operations Activity	IPPM Lab Activity
		RT-1903-01-001	Title goes here ...	Magis-100		Threat			1903.01 Magis-100 Project Management, Safety, & Quality	LA-04160: MAGIS-100 Project
		RT-1903-02-001	Title goes here ...	Magis-100		Threat			1903.02 Strontium Atom Sources	LA-04160: MAGIS-100 Project
		RT-1903-03-001	Title goes here ...	Magis-100		Threat			1903.03 Interferometry Laser Systems	LA-04160: MAGIS-100 Project
		RT-1903-04-001	Title goes here ...	Magis-100		Threat			1903.04 Frequency Comb	LA-04160: MAGIS-100 Project
		RT-1903-05-001	Title goes here ...	Magis-100		Threat			1903.05 Atom Source Connection Node	LA-04160: MAGIS-100 Project
		RT-1903-06-001	Title goes here ...	Magis-100		Threat			1903.06 Magnetic Field Systems	LA-04160: MAGIS-100 Project
		RT-1903-07-001	Title goes here ...	Magis-100		Threat			1903.07 Lower optics system	LA-04160: MAGIS-100 Project
		RT-1903-08-001	In-kind contributions delayed (UK)	Magis-100	If UK In-kind contributions are delayed long enough they can impact critical path.	Threat	External Risk / Collaborators		1903.08 Camera System	LA-04160: MAGIS-100 Project
		RT-1903-09-001	Title goes here ...	Magis-100		Threat			1903.09 Vacuum System Components	LA-04160: MAGIS-100 Project
		RT-1903-10-001	Title goes here ...	Magis-100		Threat			1903.10 DAQ Computing and Front End	LA-04160: MAGIS-100 Project
		RT-1903-11-001	Title goes here ...	Magis-100		Threat			1903.11 Structural Systems	LA-04160: MAGIS-100 Project
		RT-1903-	Title goes here ...	Magis-		Threat			1903.11 Structural Systems	LA-04160: MAGIS-

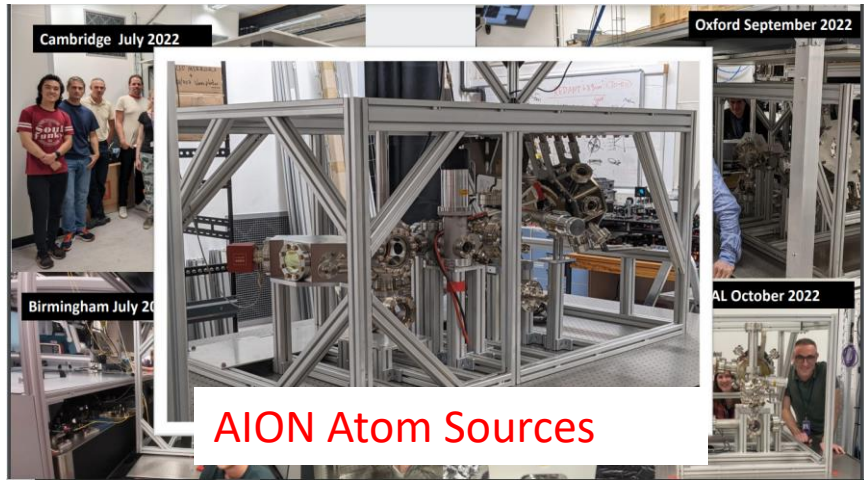
Steps to complete baselining

1. Complete schedule updates with latest reporting
 2. Check resource levels
 3. Finalize risk analysis
 4. Review and update MOA
 5. Generate funding profile
 6. Update PMP
- Still on target to complete first five items by end of March
 - Plan to settle on quarterly update and reporting after baselining

Punch list

- Still expect to complete core recommendations for establishing baseline by end of March
- Most effort has been going towards freezing baseline schedule
 - This cannot be completed until latest reporting is in and processed
 - Final set of changes are in for installation scheduling
- PM10 is moved out to the end of March alongside the freeze

Recommendation (if applicable)	Item	Promised Date	Expected Date	% Done	Comment and Status
2020 M1	Funding Guidance	10/1/2022		65%	Profile studies. In discussion with OHEP.
2020 M8	PMP	7/15/2022	5/17/2023	75%	Needs update after new 2023 baseline established.
2020 M4	MOA	8/1/2022	5/17/2023	50%	Sent for signatures.
2020 M6	I-CRADA		3/30/2023	90%	Proceeding with new system. Data entered.
	Freeze baseline schedule		3/15/2023	50%	Process Dec status update first, then final schedule vetting and resource leveling (has been 1 year since last leveled).
2022 PM10	Milestone table		3/15/2023	85%	Draft list in Dec 2022. Modeled after SBN style.
2022 CS6	Update estimate uncertainty	8/1/2022	3/30/2023	50%	Updated affected BOE's. Remaining line by line update to other BOE's to be done in 2023. Update to P6 reports needed.
	Procurement Table		3/30/2023	75%	Updated to match schedule 1/13/23. Awaiting Dec status update, then ready to put into ALP tool. Priority given to laser room.
2022 ESHQ2	High level HA report	6/1/2023	5/17/2023		By next director's review
2022 ESHQ3	QA Plan	10/1/2022	5/17/2023	50%	Also 2020 ESHQ25. Testing with stakeholders. Doc done.
2022 CS7	Variance analysis reporting		3/30/2023	50%	Reports are ready to implement after Dec status update. Follow SBN? Think about using spreadsheet. Quarterly may be enough. Talk to Peter Wilson.
2022 CS8	EAC and ETC tracking	12/15/2022	3/30/2023	50%	Reports are ready to implement after Dec status update. Follow SBN? Might be to track convergence now (earlier than later)
2022 PM9	Tailored status approach	12/15/2022		70%	Reports are ready to implement after Dec status update.
2022 PM12	2020 recommendations				Duplicate with individual recommendations in this list.
2020 M7	Decision Process	8/1/2022		50%	Document needed for succesful method previously demonstrated. Make sure this is written down and acknowledgements
2020 AI14	Interconnections	8/1/2022		50%	Collaboration-wide edits to interface table in progress July-Aug 2022
2020 AI18	Shipping Risk	Ongoing		30%	
2020 ESHQ29	Thermal Loads	9/1/2022			Awaiting bake of Stanford prototype: measure then run analysis
2020 M2	Project Support	8/1/2022	9/9/2022	100%	Duplicate - Deputy PM search.
2022 PM11	Deputy PM		9/9/2022	100%	Done.
2022 CS4	Align cost codes to WBS		10/15/2022	100%	Implemented.
2022 CS5	BOE updates	8/1/2022	12/1/2022	100%	Done. Duplicates 2020 TS11
	Schedule update after CS5 (and partial CS6)		1/11/2023	100%	Done. Links to CS5
2020 ESHQ24	QA Needs	7/15/2022		100%	Done. Engaged with Fermilab ES&H, QA plan being tested with collaborators.
2022 ESHQ1	ESH Project Support Group	9/1/2022		100%	First meeting end of June 2022. Likely done.



AION Atom Sources

MIGA galleries at LSBB

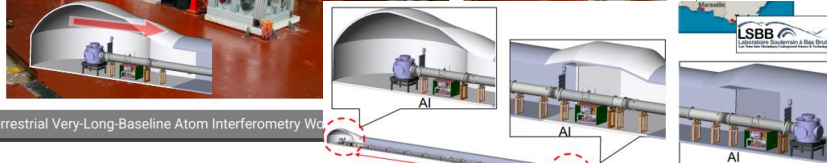


- One year duration that ended early 2020
- Finishing of the new galleries/electricity/cleanliness

After a few tens of meters



Main cavity for installing atom head but also injection laser setups, electronics...



Terrestrial Very-Long-Baseline Atom Interferometry

150 m

ZAIGA: Zhaoshan long-baseline Atom Interferometer Gravitation Antenna

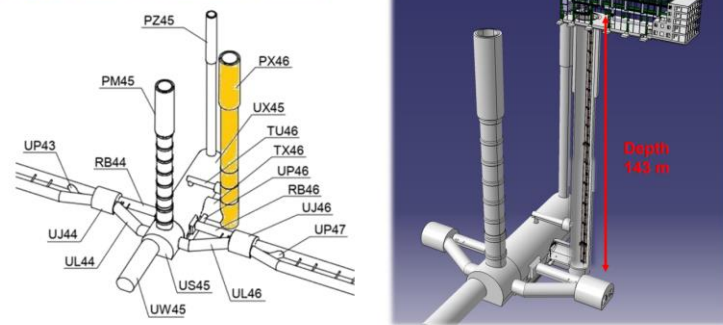
Mingsheng Zhan, Jin Wang, Wei-Tou Ni et al., *Int. J. Mod. Phys. D* 29,1940005 (2020); arXiv:1903.09288



A platform to test gravity theory with large scale atomic interferometers, gyros and optical clocks

- Equivalence Principle test
 - 10-m AIs, 240-m AI
- Clock Experiments
 - Sr clocks
- Rotation Measurement
 - 20-m gyros
- Gravitational Wave detection
 - AI array (⊥, //), clocks
- Dark Matter detection
 - AI array, clocks
- Geological and Geophysical measurement
 - gravimeters, seismometers

Selected location: PX46



14.03.2023

Sergio Calatroni | VLBAI @ CERN LHC Point 4