

AMF Conversion Welcome

CalTech Workshop

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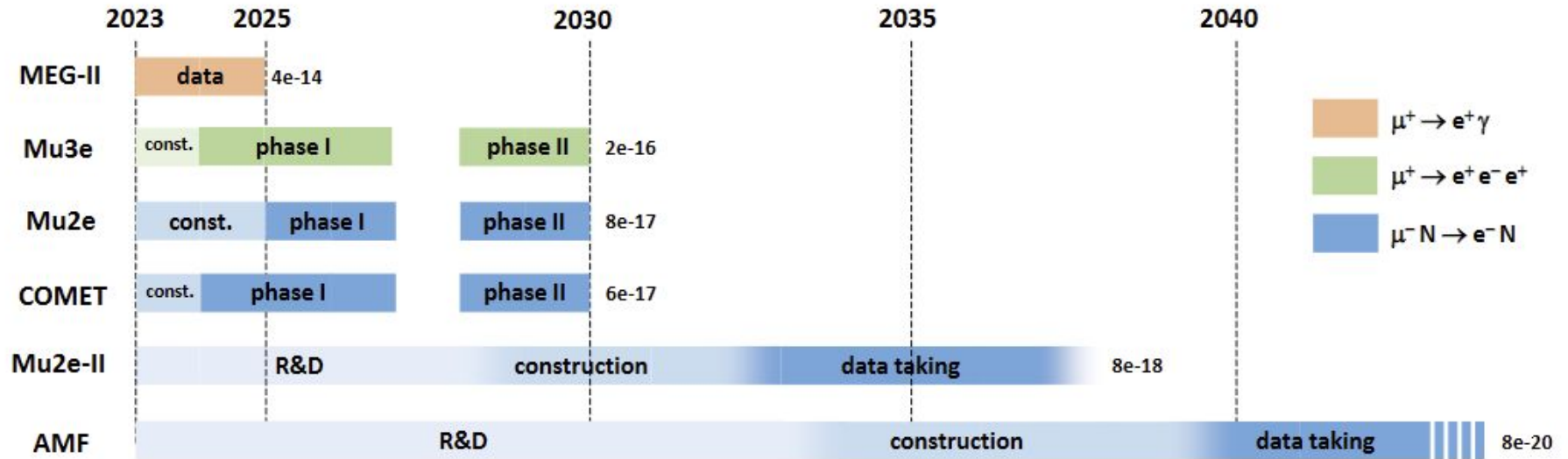
March 28, 2023

Logistics

- Welcome to the Advanced Muon Facility session on **conversion experiments!**
- This is a hybrid workshop, so let's do our best to make the Zoom attendees contribute:
 - Cole and I will do our best to watch for chats, but if you have an important comment on Zoom, please feel free to speak up to get our attention.
 - We want you involved in discussions!
- We have built lots of time into the schedule for discussion - please use it!
- Speakers please post your slides on Indico:

<https://indico.fnal.gov/event/57834/timetable/#20230328>

CLFV experiments



AMF Conversion Goals

Long Term Goals:

- Conceptual Design Report in advance of next Snowmass exercise (~10 yrs).
- Updated AMF conversion experiment publications (~2 yrs ?)

Workshop Goals:

- Provide overview of the concept, work done, and challenges remaining to reach a conceptual design.
- Identify the critical work that must be done ASAP.
- Match people to the critical tasks.

Agenda (Session 1)

	Introduction <i>269, Lauritsen</i>	<i>Craig Group</i> 13:30 - 13:50
14:00	Overview of AMF Conversion Experiment <i>269, Lauritsen</i>	<i>Bertrand Echenard</i> 13:50 - 14:40
	Signal Resolution Requirements <i>269, Lauritsen</i>	<i>Andrei Gaponenko</i> 14:40 - 14:55
15:00	Tracker Design for the Needed Mu2e-II Resolution <i>269, Lauritsen</i>	<i>Daniel Ambrose</i> 14:55 - 15:10
	Discussion 1 <i>269, Lauritsen</i>	15:10 - 15:30

Agenda (Session 2)

16:00

Tracker Hit Resolution

Richard Bonventre

269, Lauritsen

16:00 - 16:15

Tracker Design; Simulations

David Brown

269, Lauritsen

16:15 - 16:45

Cosmic Ray Veto Considerations

Craig Group

269, Lauritsen

16:45 - 17:00

17:00

Discussion 2

269, Lauritsen

17:00 - 17:30

Unique and Exciting Opportunity and Challenge

- Will there be an AMF?
 - Definitely not if we don't do the work!
- Unique Opportunity (~once in a career?):
 - The chance to inform the design of a major new facility in particle doesn't come often!
 - Young scientist should be excited to think and contribute to the future of the field.

If there is a discovery (or even a hint) of CLFV this decade,
then an AMF will be the priority of our field!

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then an AMF will be the priority of our field!

Will we be ready to build it at Fermilab?

If not, it will be built somewhere else...

References

During the workshop, you may find the following references useful:

1. AMF Snowmass Contributed Paper (2022): <https://arxiv.org/abs/2203.08278>
2. Mu2e-II Snowmass Contributed Paper (2022): <https://arxiv.org/abs/2203.07569>
3. PRISM/PRIME LOI (2006): http://j-parc.jp/researcher/Hadron/en/pac_0606/pdf/p20-Kuno.pdf
4. Snowmass Summary Report: <https://arxiv.org/abs/2301.06581>
5. Snowmass Report of the Frontier For Rare Processes and Precision Measurements:
<https://arxiv.org/abs/2210.04765>

Enjoy the Workshop!

- **We challenge you** to figure out where you can contribute to the effort.
- There is lots of interesting (and challenging) work to do!
- Let's ask the tough questions and make a plan to answer them.

Thanks to all of the speakers who agreed to share their insight and expertise.