

CBETA Advisory Committee Meeting May 9 & 10, 2019 Charge to the Committee

The next meeting of the CBETA Advisory Committee will take place on May 9 & 10, 2019, at which time there will have been significant beam commissioning experience with Task 9, "Single Pass Beam Energy Scan". The following task, "Single pass beam with energy recovery", is scheduled to begin on July 1, 2019.

The Committee is asked to evaluate the current technical status of the project, and the path towards achieving its full scope before the end of the project on April 30, 2020. The committee is also asked to identify any technical elements on which the team should focus in order to better execute the project.

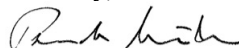
In particular the review committee is requested to evaluate:

1. **Prior recommendations:** Did the project respond appropriately to the recommendations of the last Advisory Committee meeting in October 2018?
2. **Optics validation:** Does the final analysis of the Fractional Arc Test results quantitatively validate the predicted optics?
3. **Single pass commissioning:** Is the project likely to meet the goals of Milestones 9 and 10 by June 30 and October 31, respectively?
4. **Multi-pass commissioning:** Is the strategy for moving from one-pass to multi-pass commissioning well thought out? Does the plan have sufficient flexibility to be able to respond to risks, should they occur? What are the leading risks?
5. **Goal prioritization:** Are the relative prioritizations of achieving the multiple technical goals (total current, single bunch charge, recovery efficiency, et cetera) correct?
6. **Strategies for future support:** Have the PIs identified promising strategies for obtaining financial support for continued operation and exploitation of the CBETA facility after the end of NY State funding for construction and commissioning?

The meeting will take place on May 9 & 10 in Ithaca, NY. Please present closeout conclusions to the CBETA project team prior to adjourning and make a written report available to the Oversight Board by May 31.

I very much appreciate your willingness to lend your time and expertise to this important step in the CBETA review process and look forward to receiving your assessment.

Sincerely,



Berndt Mueller
Associate Laboratory Director for Nuclear and Particle Physics
Chair of the CBETA Oversight Board
Brookhaven National Laboratory

Table 1: Key Performance Parameters and ultimate design parameters.

Parameter	Unit	KPP	Design
Electron beam energy	MeV		150
Electron bunch charge	pC		123
Electron source current	mA	1	40
Bunch repetition rate (source)	MHz		325
RF frequency	MHz	1300	1300
Injector energy	MeV		6
RF operation mode			CW
Number of ERL passes		1	4
Energy aperture of arc		2	4

Table 2: High level technical milestones.

#	Technical milestone	Contract	Actual
	NYSERDA funding start date		31-Oct-16
1	Engineering design documentation complete	31-Jan-17	31-Jan-17
2	Prototype girder assembled	30-Apr-17	30-Apr-17
3	Magnet production approved	30-Jun-17	23-Jun-17
4	Beam through Main Linac Cryomodule	31-Aug-17	16-Jun-17
5	First production hybrid magnet tested	31-Dec-17	21-Dec-17
6	Fractional Arc Test: beam through MLC & girder	30-Apr-18	20-Apr-18
7	Girder production run complete	30-Nov-18	21-Nov-18
8	Final assembly & pre-beam commissioning complete	28-Feb-19	13-Mar-19
9	Single pass beam energy scan	30-Jun-19	
10	Single pass beam with energy recovery	31-Oct-19	
11	Four pass beam with energy recovery (low current)	31-Dec-19	
12	Project complete	30-Apr-20	