

eRHIC Bi-Weekly Status Report

December 26, 2017

Happy Holidays!

Recent Developments:

- The eRHIC Team members are working on seven BNL Proposals in response to the DOE FY2018 EIC Accelerator R&D Funding Opportunity Announcement (FOA) and are collaborating with other institutions on another five. BNL-led proposals and their lead PIs are as follows:
 - High Intensity ERL Test at CBETA – S. Peggs
 - Development of NbSn IR Quadrupoles for EIC – P. Wanderer
 - Development & Test of Simulation Tools for EIC Beam-Beam Interaction – Y. Luo
 - Polarimeter Development for Polarized He3 – D. Raparia
 - Development of Photocathodes for High Intensity Beam Cooling for ERL – E. Wang
 - Experimental Verification of Coherent Electron Cooling – V. Litvinenko
 - Coherent Electron Cooling with Micro-Bunching Amplifier – F. Willeke

A Red Team is being assembled to review the proposals on January 8 and 9 in preparation for submission on January 19, 2018. Award selections are to be made by July 15, 2018. Cris Manalo (cmanalo@bnl.gov) is coordinating the budget portion of the submissions, Andrea Wund (awund@bnl.gov) is coordinating all other portions of the submission, and Yelena Belyavina (ybelyavina@bnl.gov) is available to assist with Graphics. Thank you to the BNL Proposal Center for their assistance with the submission!

- eRHIC pre-conceptual design and planning work is progressing slowly due to the focus on the Accelerator R&D funding proposals. Work will need to pick up again quickly in order to maintain the goal of producing a complete draft of the pre-Conceptual Design Report (pCDR) two weeks before the pCDR Review planned for April 16-17. The pre-CDR will be finalized after incorporating feedback from the pCDR review and consideration of the NAS report. The final document should be available for distribution in June 2018.
- Descriptions of two injector schemes for eRHIC (Linac Recirculating Injector and Rapid Cycling Synchrotron) were sent to international experts in the field for review. Charge questions for the reviewers focused on feasibility, tolerances, and cost. Responses are due by the end of January, at which time we will be ready to make the final injector decision.
- Congratulations to the CBETA Project Team for an early completion of Milestone 5 – “First Arc Production Magnet Tested”. Thanks go out to the entire CBETA team and especially Stephen Brooks, Dejan Trbojevic, and Joe Tuozzolo for their efforts in reaching this important milestone. Work continues on the next major (go/no go) milestone – “Fractional Arc Test: Beam Through MLC & Prototype Girder” -- which is due on April 30, 2018.
- The next eRHIC Program Steering Group (PSG) meeting will be held on January 25, 2018 and will focus on strategies to achieve longer-term eRHIC goals. The February 22, 2018 meeting will be dedicated to providing feedback on the draft eRHIC Pre-Conceptual Design Report.
- Because of a conflict with the EIC Detector R&D meeting planned for January 18th, 2018, the Center for Frontiers in Nuclear Science (CFNS) Seminar will not have a talk on that day. We will begin again in February. Stay tuned for the announcements of the Center’s web pages including the links to the seminar series and other activities. If you have suggestions for seminar speakers please send them to Pia Zurita, Andrey Terasov, Christos Kallidonis, or Niles Feege.
- The eRHIC Coffee Break schedules have been adjusted slightly to allow C-AD staff members “meeting-free time” on Tuesday mornings and Thursday afternoons. eRHIC Coffee Breaks will now take place every other Wednesday afternoon, alternating between the C-AD Lobby (Building 911) and the

Physics Lounge (Building 510). Please join us for the next Coffee Break at 3:30 p.m. on Wednesday, January 10, 2018 in the C-AD Lobby (Building 911). Please continue to encourage others interested in eRHIC to attend.

Issues:

- Strategies will need to be developed for enlarging support for an EIC both within NP and the broader science community.
- The process for preparing a European strategy for particle physics is starting and it will be important for the EIC community to contribute to the deliberations.
- The ability of the NPP Directorate to successfully manage and complete the sPHENIX project is an important demonstration to the DOE Nuclear Physics Program that BNL can successfully complete mid- to large-size construction projects. The current focus is on a successful sPHENIX CD-1 DOE Review in FY2018.
- Due to delays caused by iterations of the IR design and the work associated with the FY18/19 FOA proposals, the pre-conceptual design work and the progress with the pre-CDR fell behind plan. Work will need to be accelerated in order to meet the April 2018 deadline.

Major Near-Term Milestones:

- National Academy of Sciences Study 2017
- National Academy Panel Report Spring 2018
- eRHIC Pre-Conceptual Design Report March 2018
- eRHIC Pre-Conceptual Design Review April 2018
- Publish eRHIC Pre-Conceptual Design Report May/June 2018
- Ready for CD-0 Mission Need decision of EIC June 2018
- Anticipated CD-0 (Mission Need Determination) Late 2018

Calendar:

- eRHIC Coffee Break to be held at 3:30 p.m. in the C-AD Lobby (Building 911) January 10, 2018
- EIC Detector R&D Committee Meeting at BNL January 18-19, 2018
- Due date for the DOE Accelerator R&D Funding Proposals January 19, 2018
- eRHIC Coffee Break to be held at 3:30 p.m. in the Physics Lounge (Building 510) January 24, 2018
- ½ day eRHIC Program Steering Group Meeting January 25, 2018
- ½ day eRHIC Program Steering Group Meeting February 22, 2018
- sPHENIX Director's Review March 6-8, 2018
- sPHENIX DOE Review May 8-10, 2018
- eRHIC Pre-Conceptual Design Review April 16-17, 2018
- Award Date for the DOE Accelerator R&D Funding Proposals July 15, 2018

eRHIC SharePoint Site:

- Copies of these Bi-Weekly Reports and other information about eRHIC are located on the eRHIC SharePoint site <https://brookhavenlab.sharepoint.com/sites/eRHIC/SitePages/Home.aspx>. If you have trouble accessing this site, please contact Alyssa Petrone at apetrone@bnl.gov or x7735.

Link for the EIC Energy Assessment Paper (BNL Formal Report (BNL-114111-2017)):

- See <https://arxiv.org/abs/1708.01527>