

Education and Public Outreach (EPO)

Findings

1. The US ATLAS HL-LHC EPO effort starts from a strong position due to a track record of success in US ATLAS EPO activities to date.
2. The PDR report notes, "The team did present a plan for Education and Outreach, but has not allocated specific MREFC resources for this purpose." The NSF has clarified that MREFC funds cannot be directly used for EPO purposes. With that understanding, several considerations regarding an approach to EPO were presented.
3. Coordination with US CMS on some EPO issues, such as a survey, is being pursued.
4. The role of the US ATLAS EPO coordinator has been expanded to specifically include EPO regarding HL-LHC activities.
5. The proposed EPO effort leverages those existing US ATLAS EPO programs and would include technical work involving undergraduates. The individual ingredients comprising the proposed EPO effort appear to be strong with good potential.
6. The HL-LHC EPO plan presents substantive, implementation ready plans for leveraging MREFC funding to promote educational outreach and broader impacts. It is centered on a few crisply defined activities that showcase how NSF's MREFC funding will be leveraged within the context of the broader base experimental particle physics research program at the LHC. It includes plans for assessment of impacts. It includes a diversity plan, with an implementation strategy and metrics.

Comments:

1. The value that the proposed HL-LHC EPO effort adds is somewhat unclear, beyond the already existing (separate) US ATLAS EPO programs. One motivation given was that of providing "coordination across the existing programs". The proponents should consider improving the messaging (in the slides of the presentation) of how the proposed effort would address cross-program coordination issues in a way that is transformative to the existing (separate) US ATLAS EPO programs.
2. The coordination with US CMS and the involvement of a STEM education professional to conduct and interpret surveys of the workforce is commendable. Surveys can be an important part of the proposed HL-LHC EPO effort, but the proponents should consider improving the message (in the presentation slides) regarding the purpose of the surveys. For example, is the purpose of the surveys to provide data to experts who would publish academic research in education journals? Or, is the end goal to demonstrate the "value" or to improve the proposed HL-LHC EPO effort -- if so, it would be helpful to (briefly) outline (in the slides) how the results of the surveys would feedback and contribute to the "big story" (see Recommendation below) of the proposed HL-LHC EPO effort.
3. The proponents might consider documenting additional EPO opportunities, potentially obtained following successful competitive review of additional proposals to NSF (or elsewhere) that are outside the MREFC. Including a description of such

additional (albeit speculative) activities might further expand the reach and impact of the MREFC/EPO leveraging plan.

4. Many of the L2 talks provided good EPO messaging, but given the tight time constraints and technical focus of those talks, it would seem more effective to collect the most compelling of those EPO elements into the plenary talk.
5. The plenary EPO presentation did not adequately highlight the strong opportunities for education and outreach that are embodied in the project. The statement from the NSF FDR guidance memo (# 651), "NSF would like to have focused discussions about how to make the education/outreach programs "shine" at FDR." clearly indicates the importance the agency places on this aspect of the project.

Recommendation:

1. The narrative of the proposed EPO effort could be clearer. The proponents should work to articulate a compelling "overarching theme," "punch-line", and/or "title" of the proposed effort, which reviewers can quickly understand and appreciate.