

Charge to the *Ad-Hoc* SDCC-NPP Review Committee

July 13, 2020

The committee is asked to provide advice on how the BNL Scientific Data and Computing Center (SDCC) can best serve the needs of the High Energy and Nuclear Physics programs in the Nuclear and Particle Physics (NPP) Directorate for scientific computing.

Background

Since 2000, the computing resources in NPP have been concentrated in the RHIC-ATLAS Computing Facility (RACF), which combined the Tier-0 computing facility for RHIC and the Tier-1 facility for ATLAS. In addition, the RACF served the lattice QCD groups at BNL and USQCD by providing dedicated computing resources. Following the formation of the directorate-level Computational Science Initiative in 2015, which is tasked with developing computational science across the Laboratory, the RACF, while organizationally remaining in NPP, became a part of the SDCC, which also serves users in other BNL directorates, such as light source and the Center for Functional Nanomaterials. Recently, SDCC became the data center outside Japan for the Belle II, operating key services for the experiment.

The Department of Energy has recognized growth of the SDCC by investing in the conversion of the former light source building into a state-of-the-art computing facility through a \$75 million Science Laboratory Infrastructure project initiated in 2016. Upon completion, beginning in 2021, the SDCC computing equipment will be relocated into the new facility, in time for the start of LHC Run 3. The new computing facility will allow for a significant expansion of the installed computing equipment.

These developments underpin the evolution of the SDCC towards that of a “Superfacility” which stewards computing resources for several science programs and experimental facilities independent of their physical location. A recent example of this trend is the Belle II experiment at KEK in Japan, where the SDCC provides substantial computing resources. Possible roles of the SDCC in other science programs are under consideration.

Charge

In view of the ongoing and expanding role of the SDCC in providing reliable, cost-effective, and scientifically enabling resources for research programs in Nuclear and Particle Physics, the committee is asked to provide advice on the mechanisms that can assure success. In providing this advice, the committee should consider the interests of both, the SDCC and the partnering NP and HEP programs in NPP. Specific questions that should be addressed by the committee include:

- Does the SDCC have a credible plan for accommodating the short- and long-term needs of a variety of programs in NP and HEP as it evolves into the role of a Superfacility that is both responsive and economically efficient?
- Does the SDCC have a convincing plan for providing cost-effective service by exploiting synergies between different customers?
- Does the current organizational and financial model of the SDCC adequately support its growth aspirations?