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Progress in the Data and Analysis Preservation in the PHENIX Experiment at RHIC

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The PHENIX Collaboration has actively pursued a Data and Analysis Preservation program since 2019, the first such dedicated effort at RHIC. We successfully leveraged the Zenodo platform at CERN for knowledge management purposes, and the HEPData portal to reliably preserve the vast majority of all numerical data used in PHENIX publications. A particularly challenging endeavor is preservation of complex physics analyses, selected for their scientific importance and the value of the specific techniques developed as a part of the research. For this, we have chosen two of the most impactful PHENIX results: (a) the joint study of direct photons and neutral pions in d+Au collisions and (b) study of the J/ψ production via the di-muon decay channel. To ensure reproducibility of these analyses going forward, the general strategy is to carefully partition them into self-contained tasks. This is supplemented by a combination of containerization techniques, code management, and robust documentation. We also leverage REANA as one of the preferred ways to run the required software. We present our experience based on these examples, and outline our future plans for analysis preservation.

Summary

Author: POTEKHIN, Maxim (Brookhaven National Laboratory (US))

Co-authors: SMIRNOV, Dmitri (BNL); DAVID, Gabor

Presenter: POTEKHIN, Maxim (Brookhaven National Laboratory (US))

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