Explanation of Beam Time Request for CY2018

The HPS experiment has been approved to run for 180 PAC days (15 of which have been used in the HPS Engineering Runs of 2015 and 2016) in order to search for a heavy photon (aka hidden sector photon) over a wide range of mass/coupling parameter space at energies between 1.1 and 6.6 GeV. During the HPS Engineering run in 2015-2016, we have acquired roughly 2 PAC days of production data at 1.1 GeV and about 5 PAC days at 2.2 GeV, which have demonstrated the physics readiness of HPS. Analyses of these data sets are underway. In this run period we request at total of 57 PAC days including 25 days at 2.2 GeV (1 pass) to complete the first phase of data taking at this energy, and 32 days at 4.4 GeV (2 pass) to begin the first phase of data taking at this new energy. This request includes a few days for beam setup, detector and trigger commissioning, and diagnostics in addition to extended data taking periods. This run will constitute the first contiguous running for the HPS experiment and will extend the search for heavy photons into a wide region of unexplored parameter space.