

Single Bunch Drive to Wake Results

E300 Collaboration Meeting

Robert Ariniello / Project Scientist / AARD

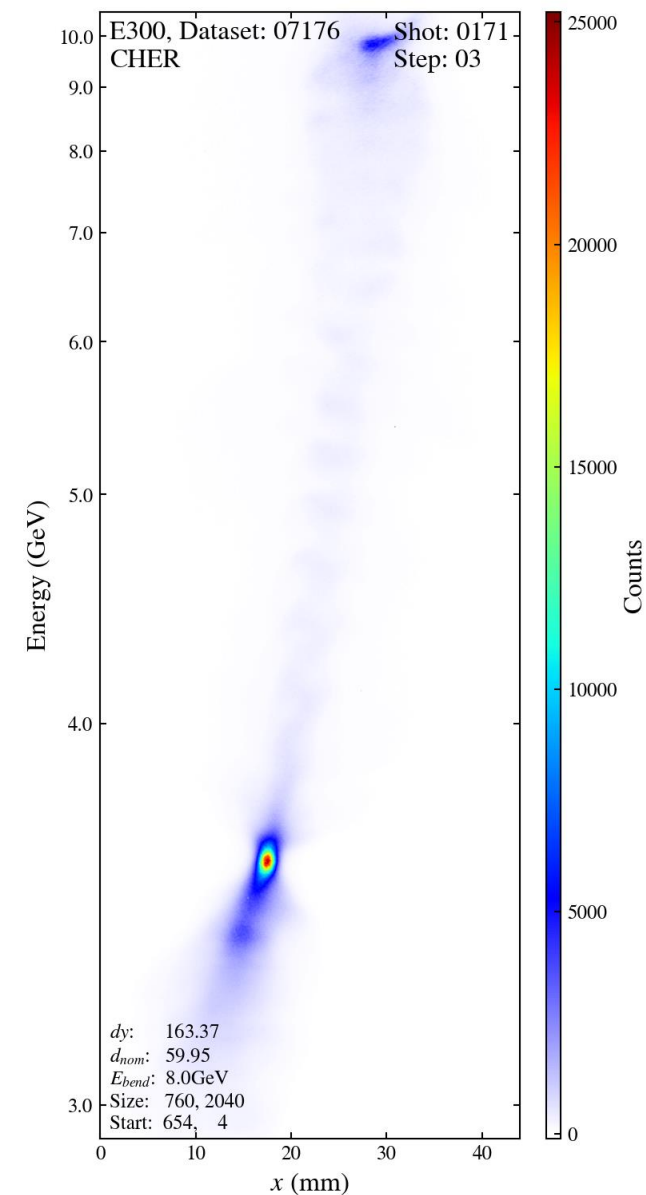
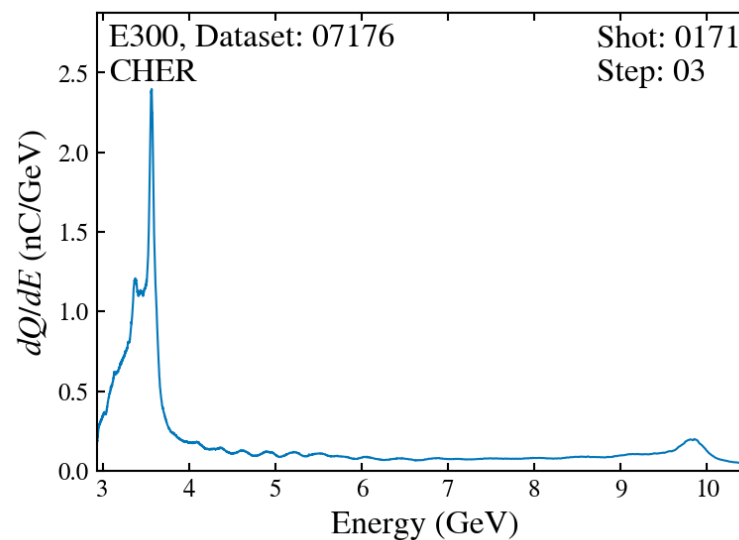
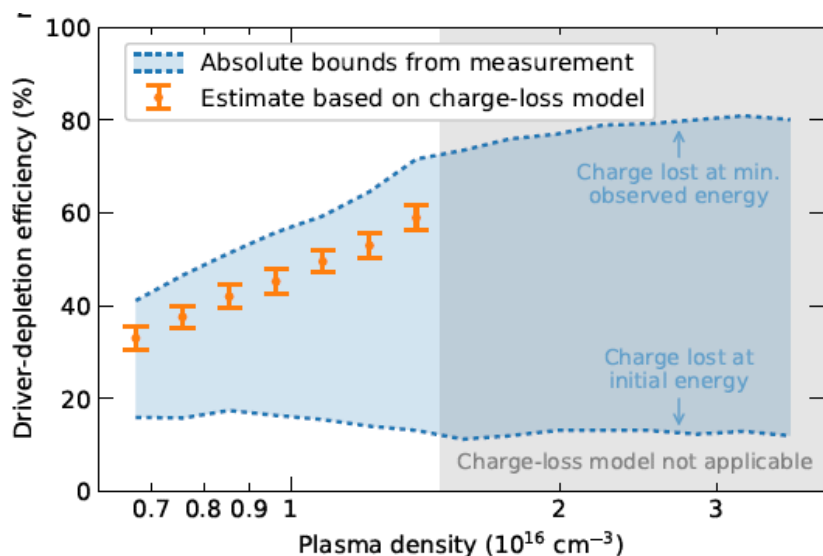
June 24, 2024



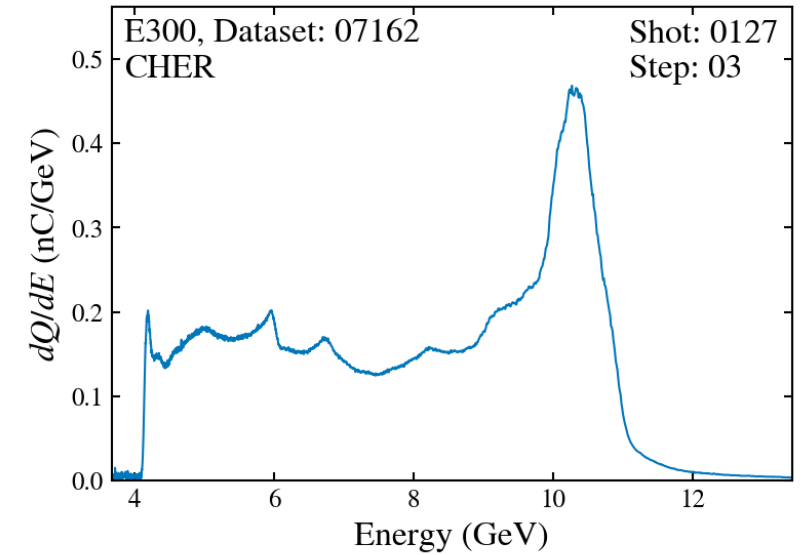
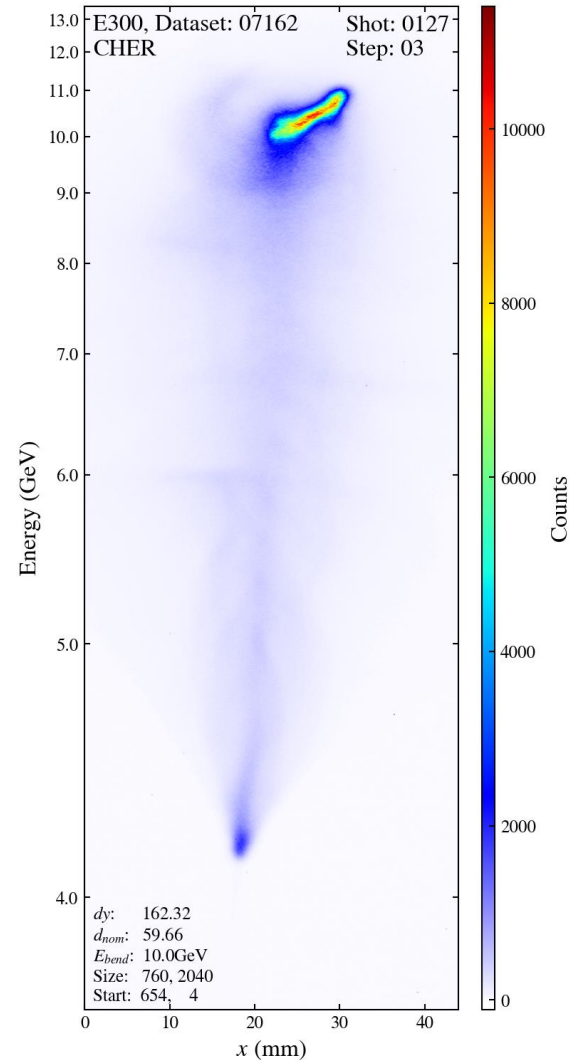
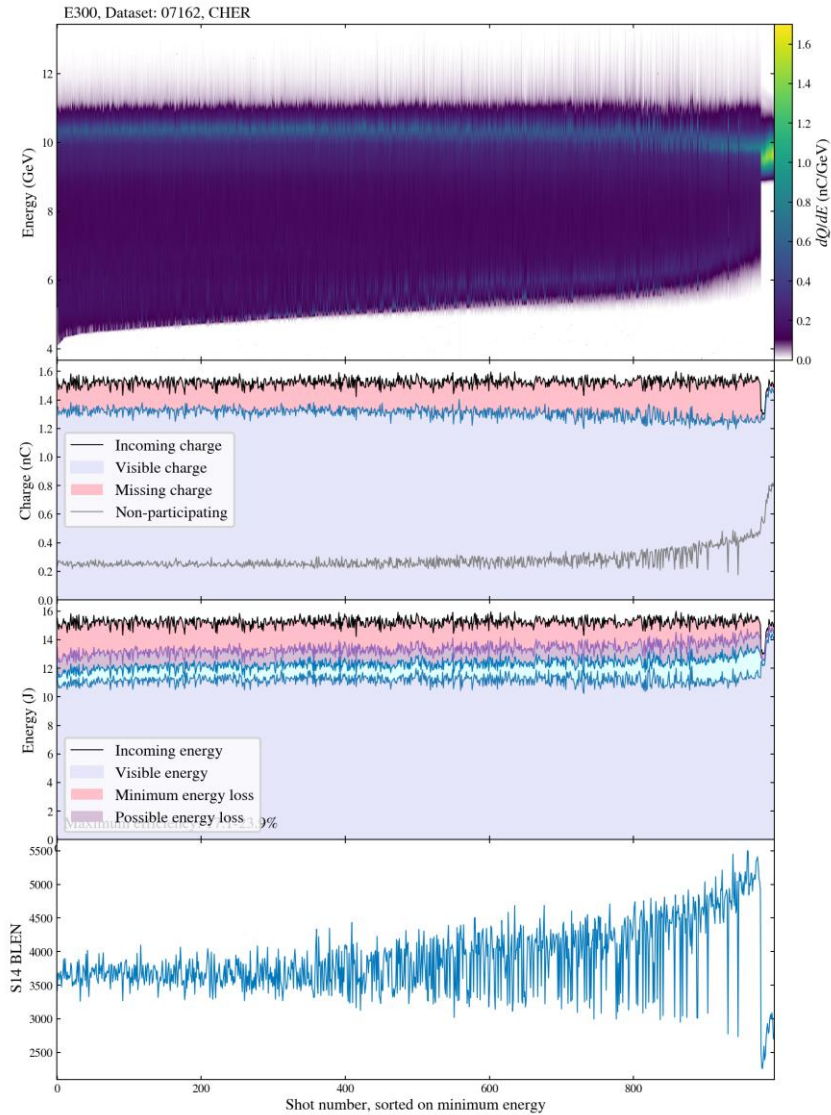
FACET-II
Facility for Advanced
Accelerator Experimental Tests

Summary of results

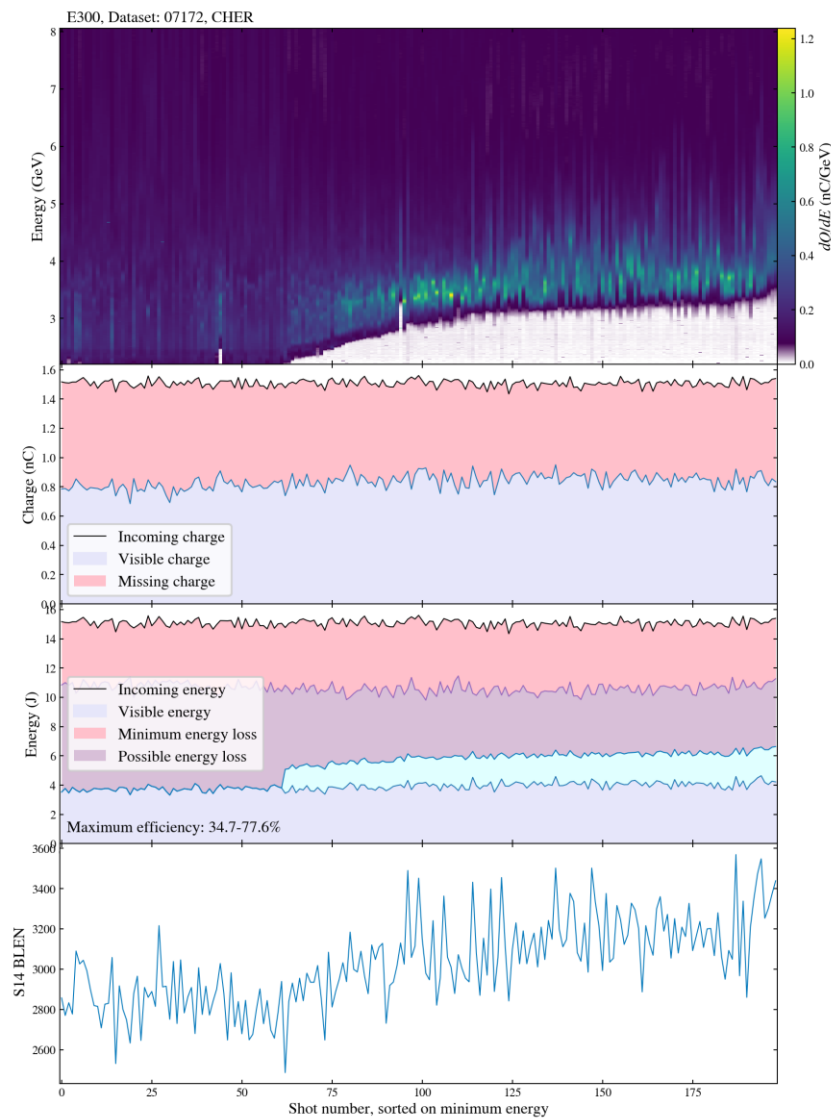
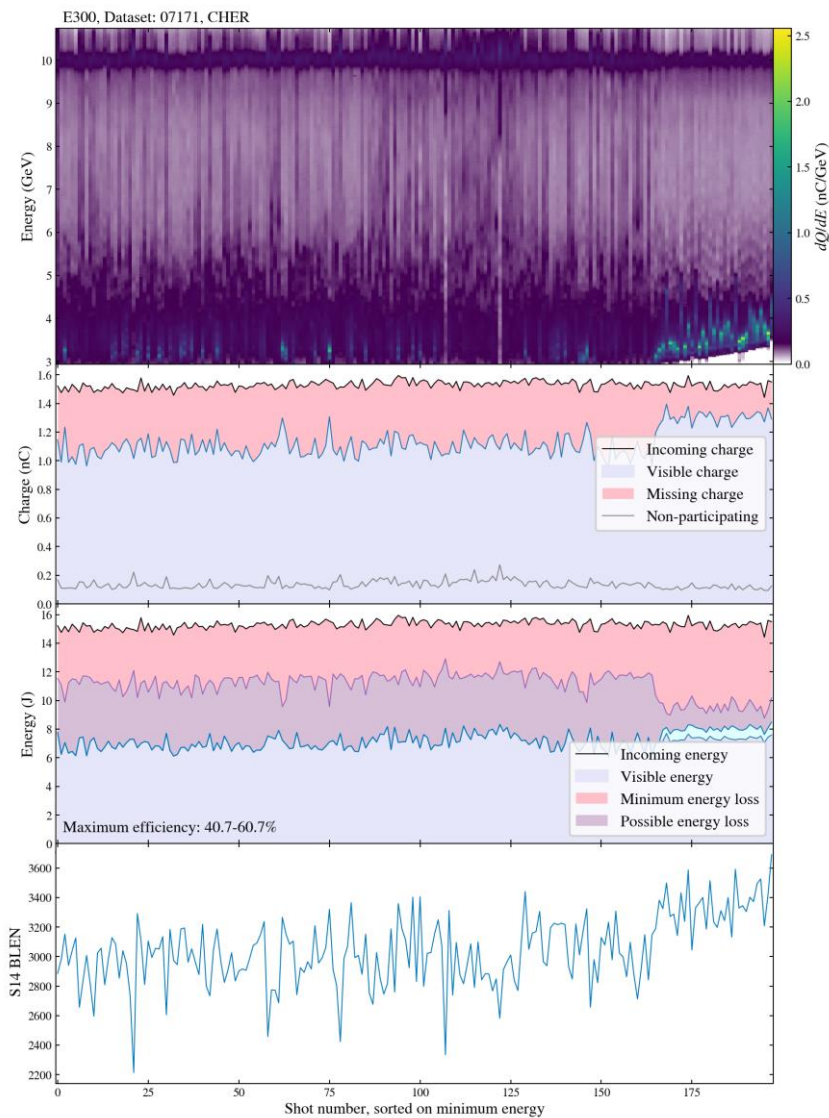
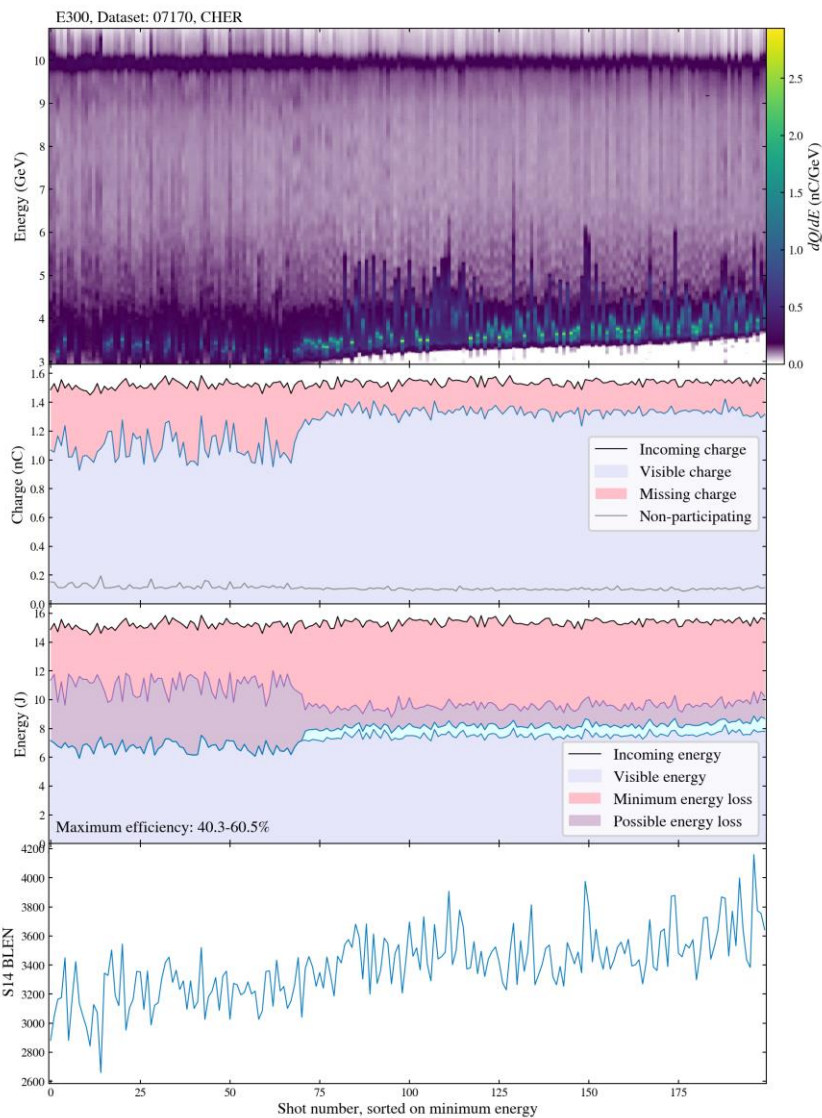
- Drive to wake energy transfer efficiency:
 - Direct measurement: 43.0%
 - Likely achieved: 55%
 - Likely can reconstruct from multiple spectrum



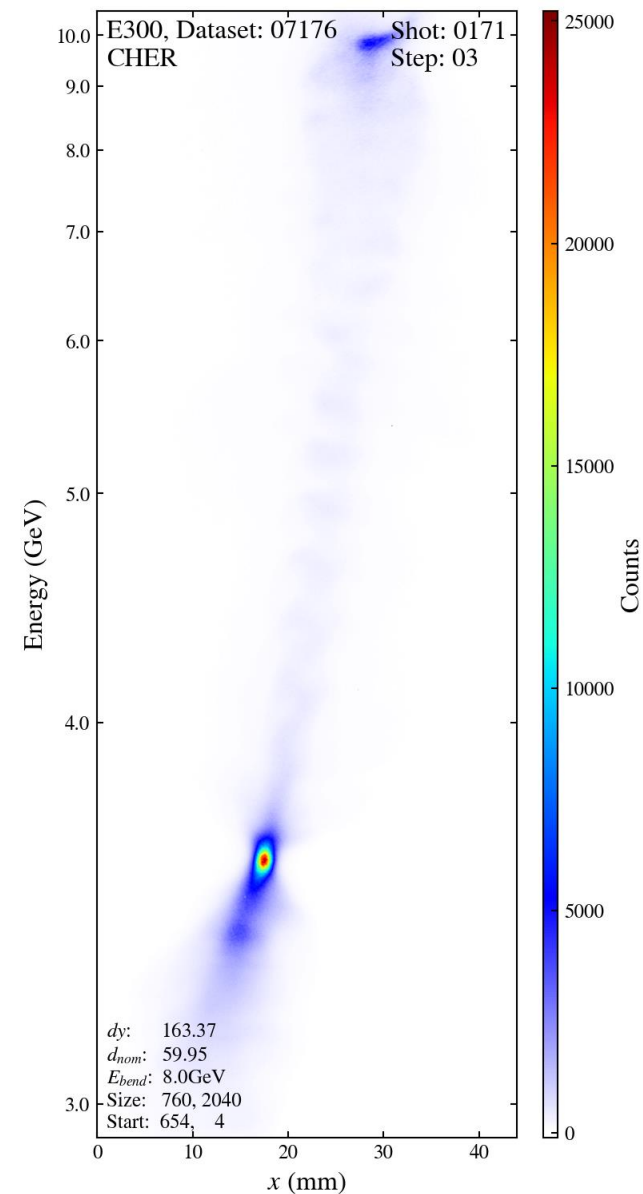
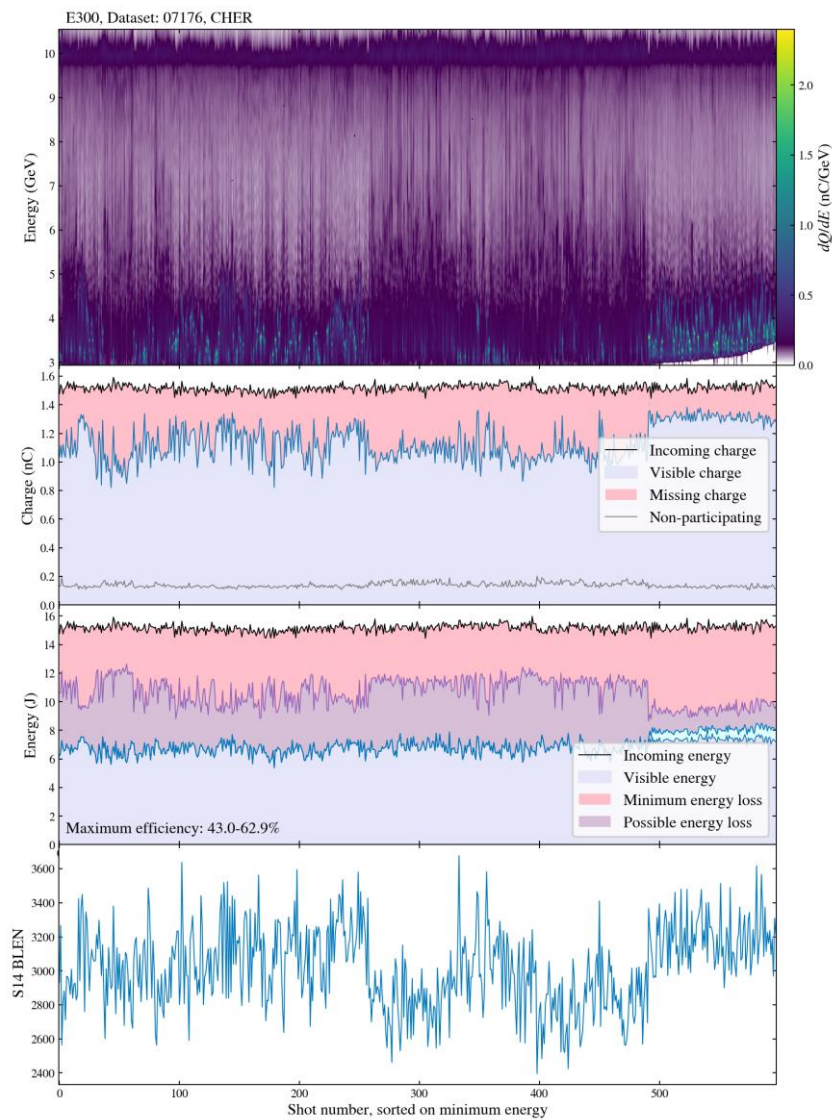
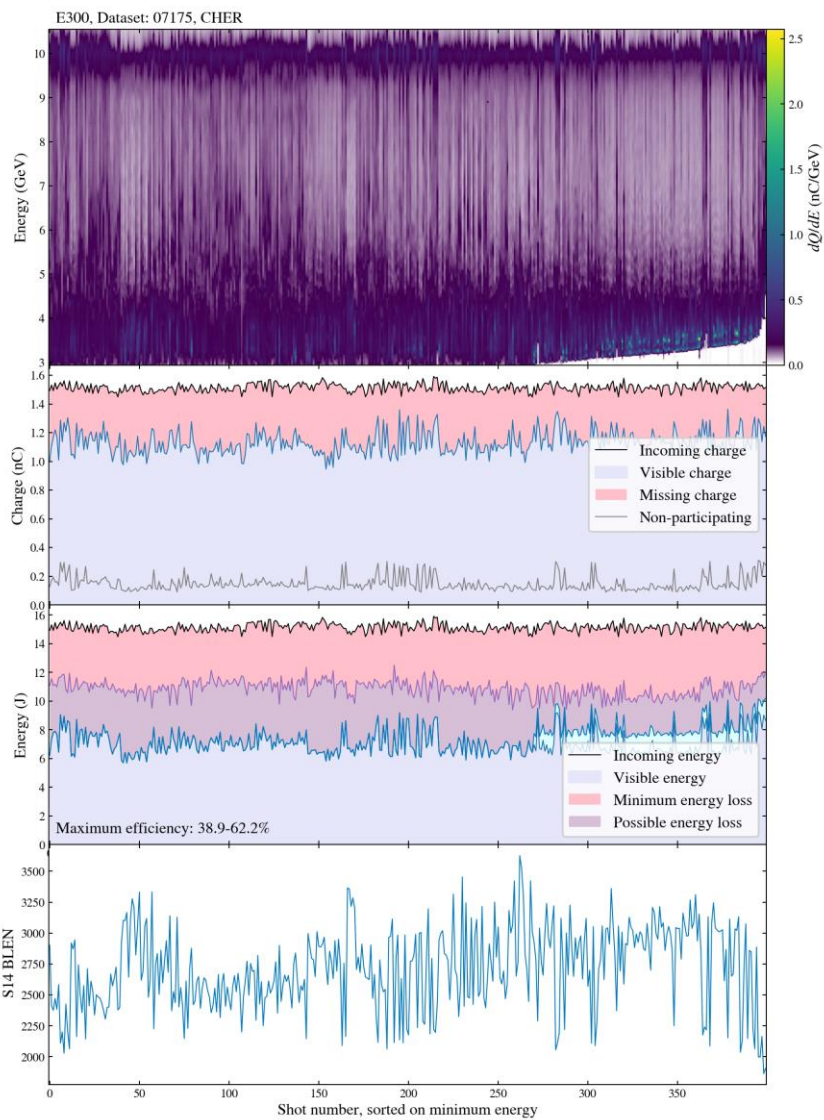
Sextupole tuning key – before tuning



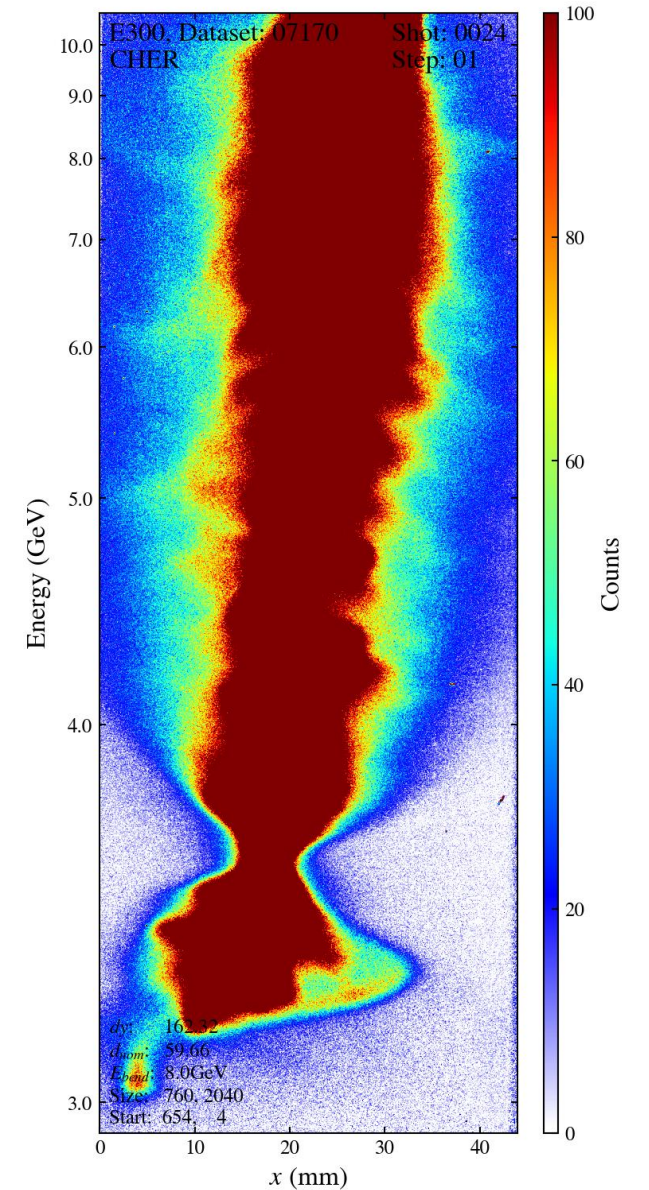
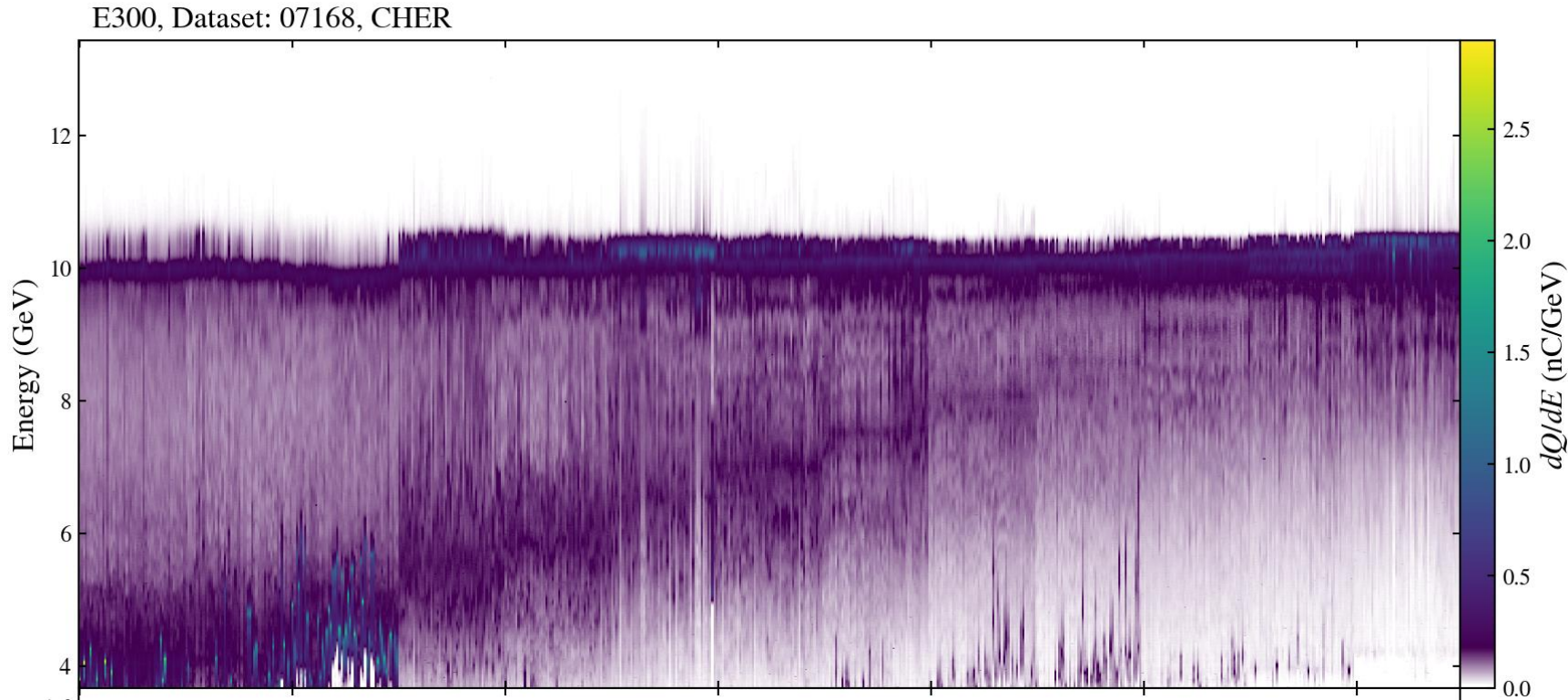
50cm beta datasets



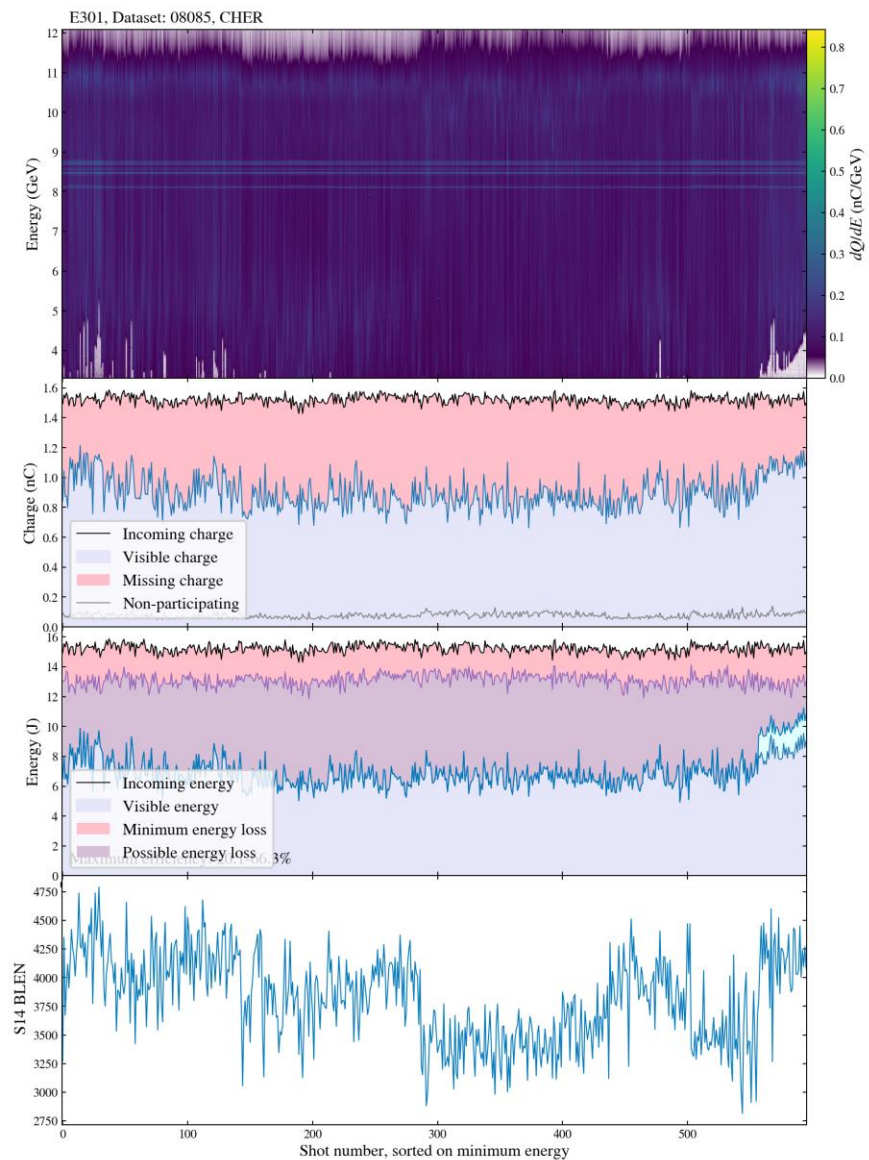
25cm beta datasets



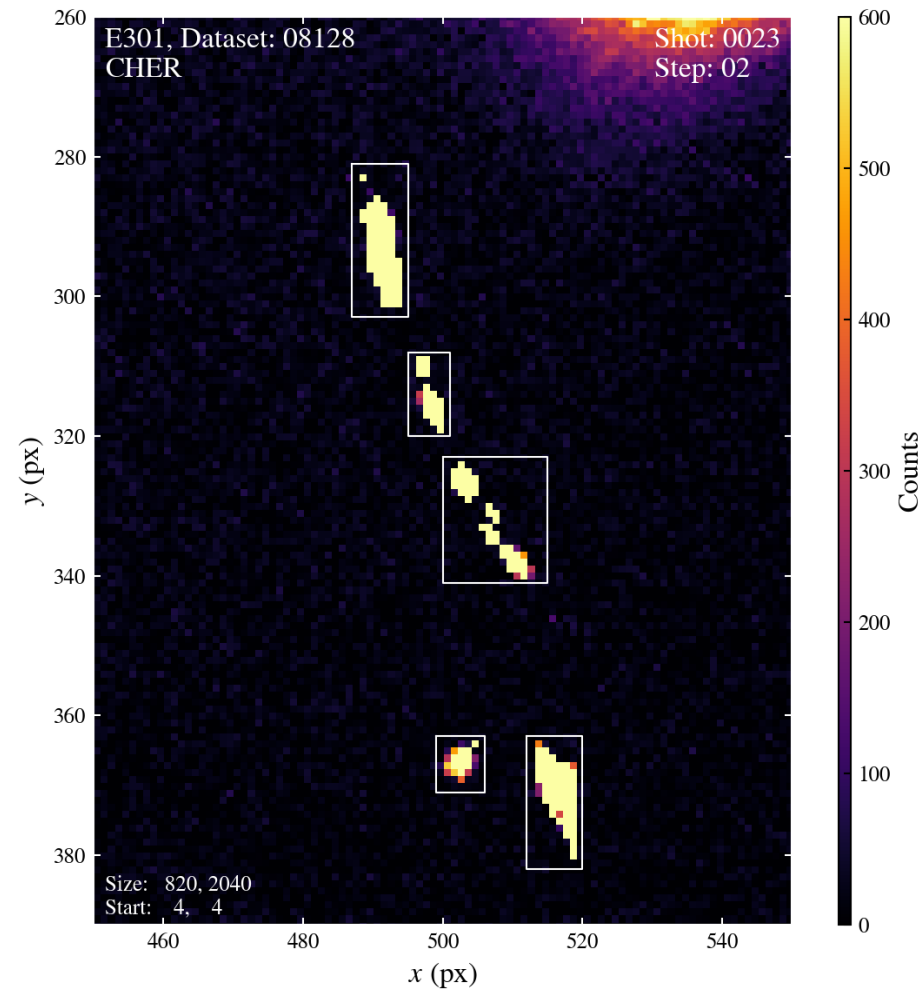
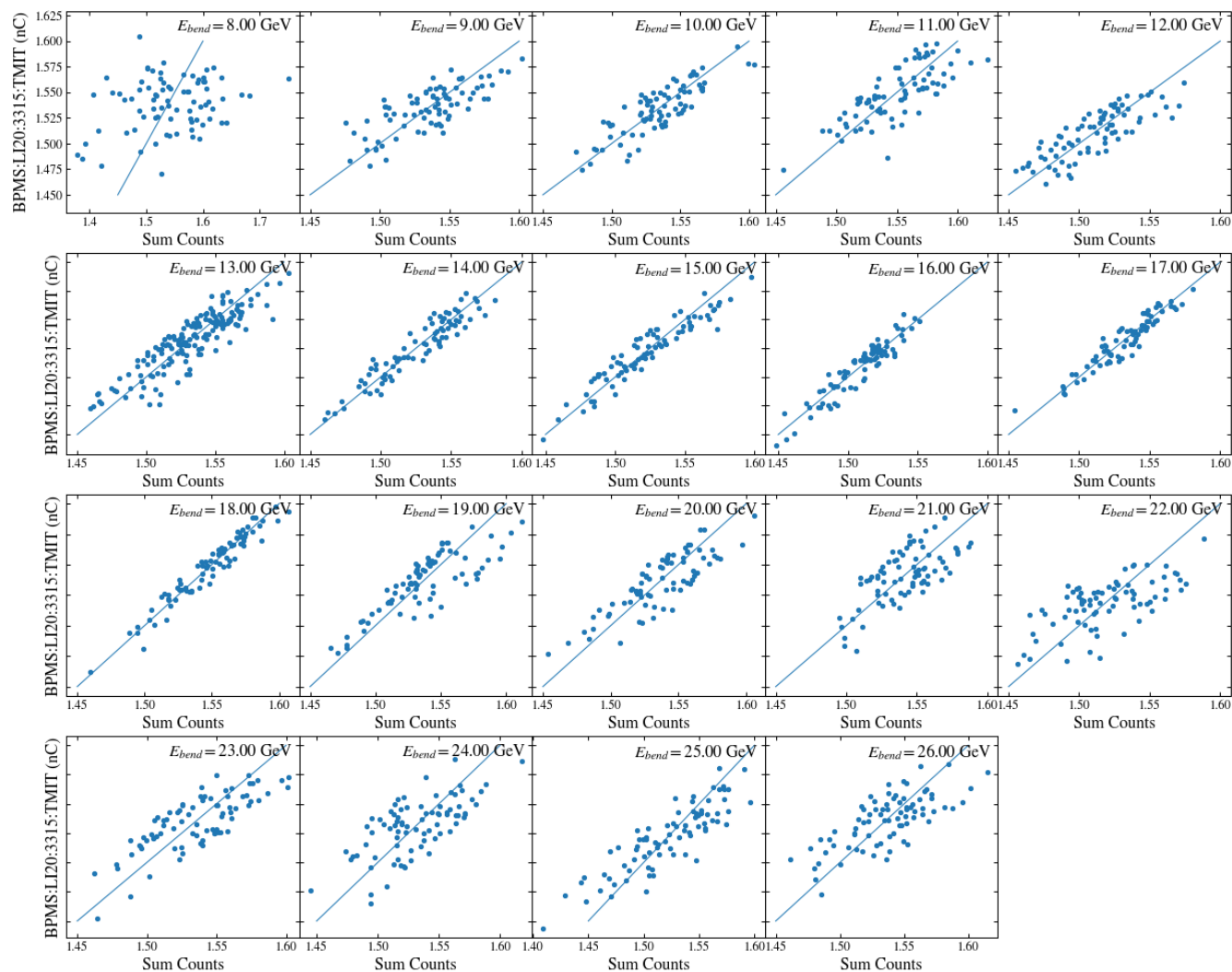
Imaging energy scan



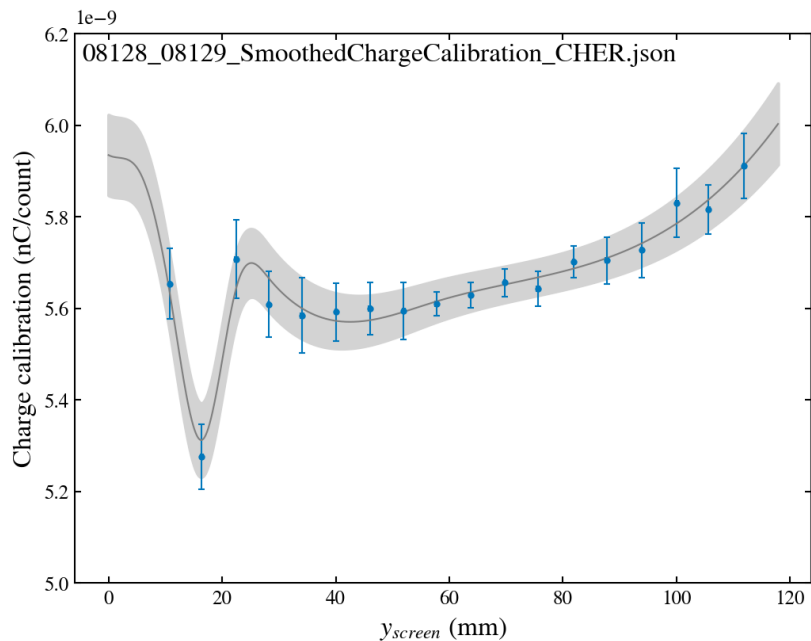
E301 – laser ionized H2



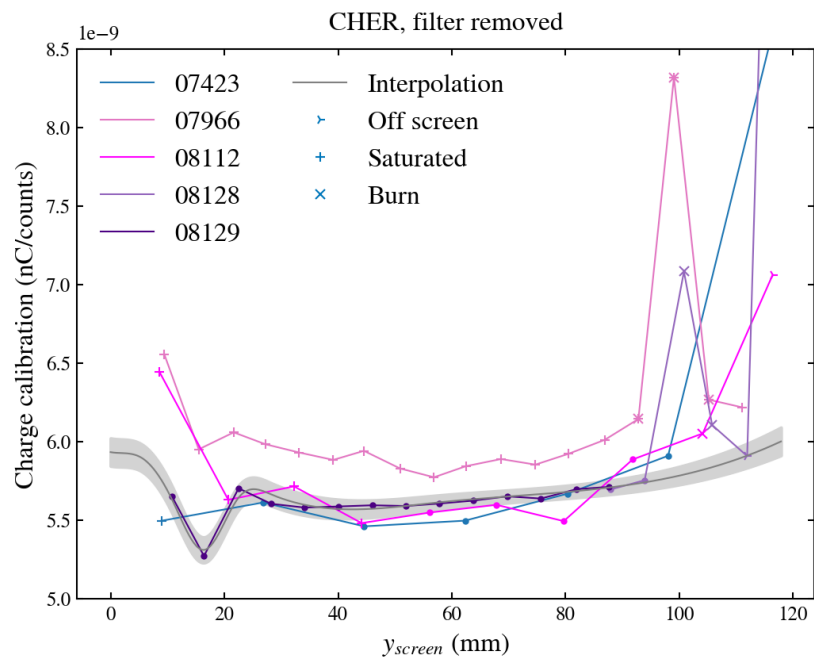
Charge calibration



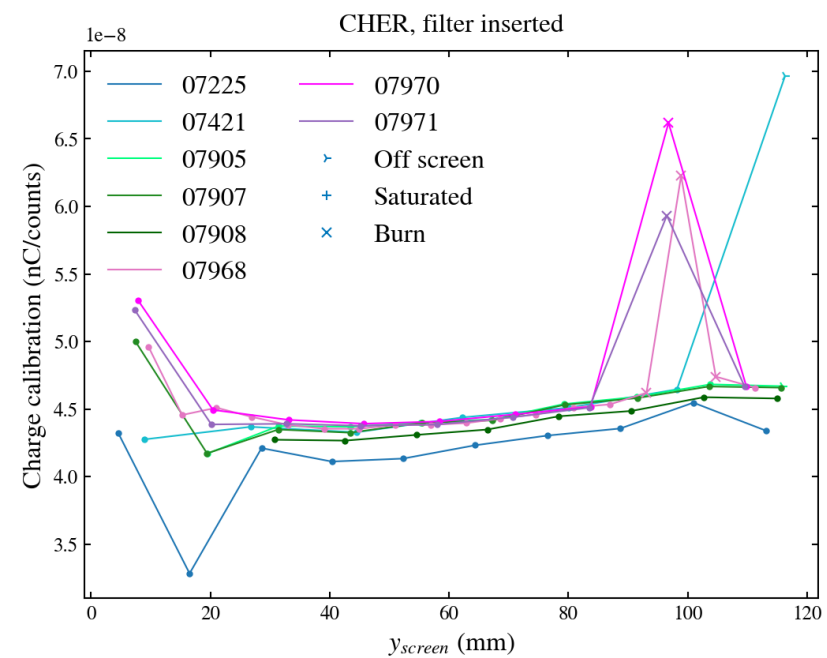
Charge calibration



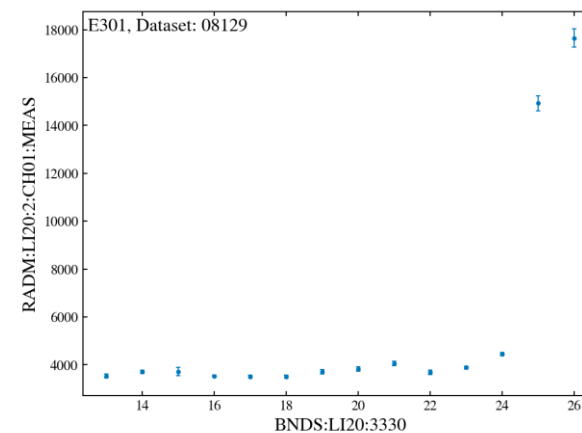
Charge calibration used for analysis



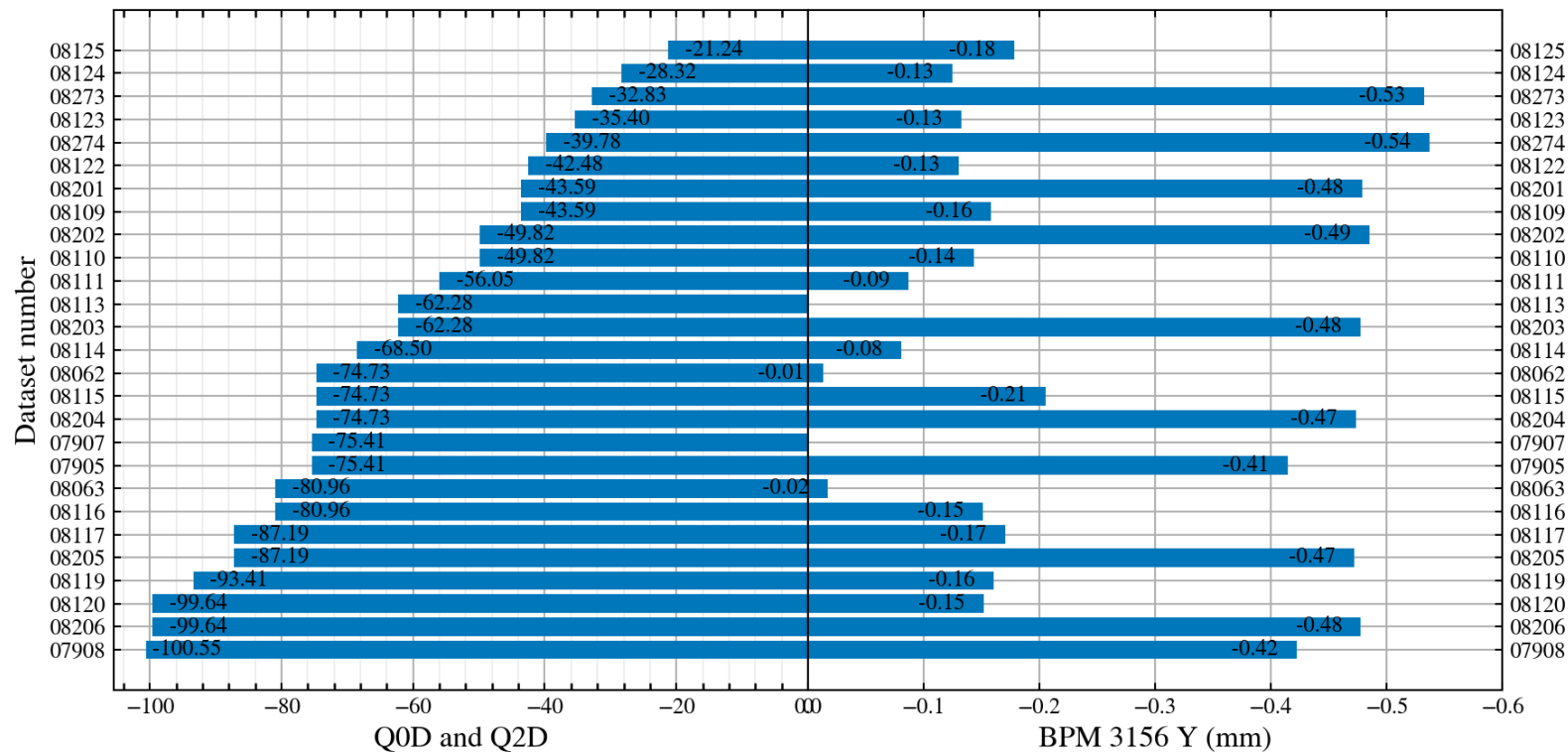
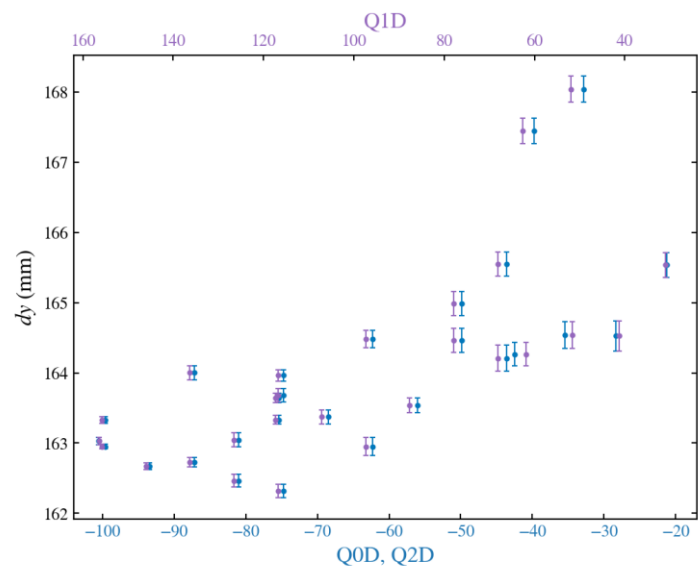
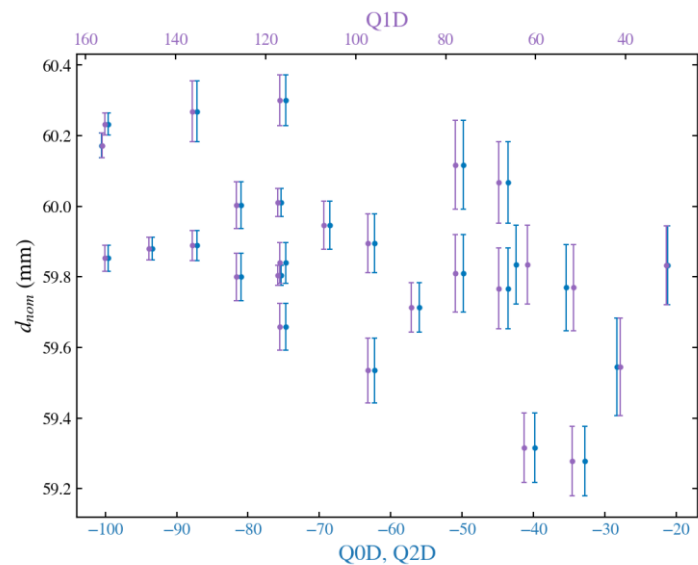
Burn spots/saturation problems



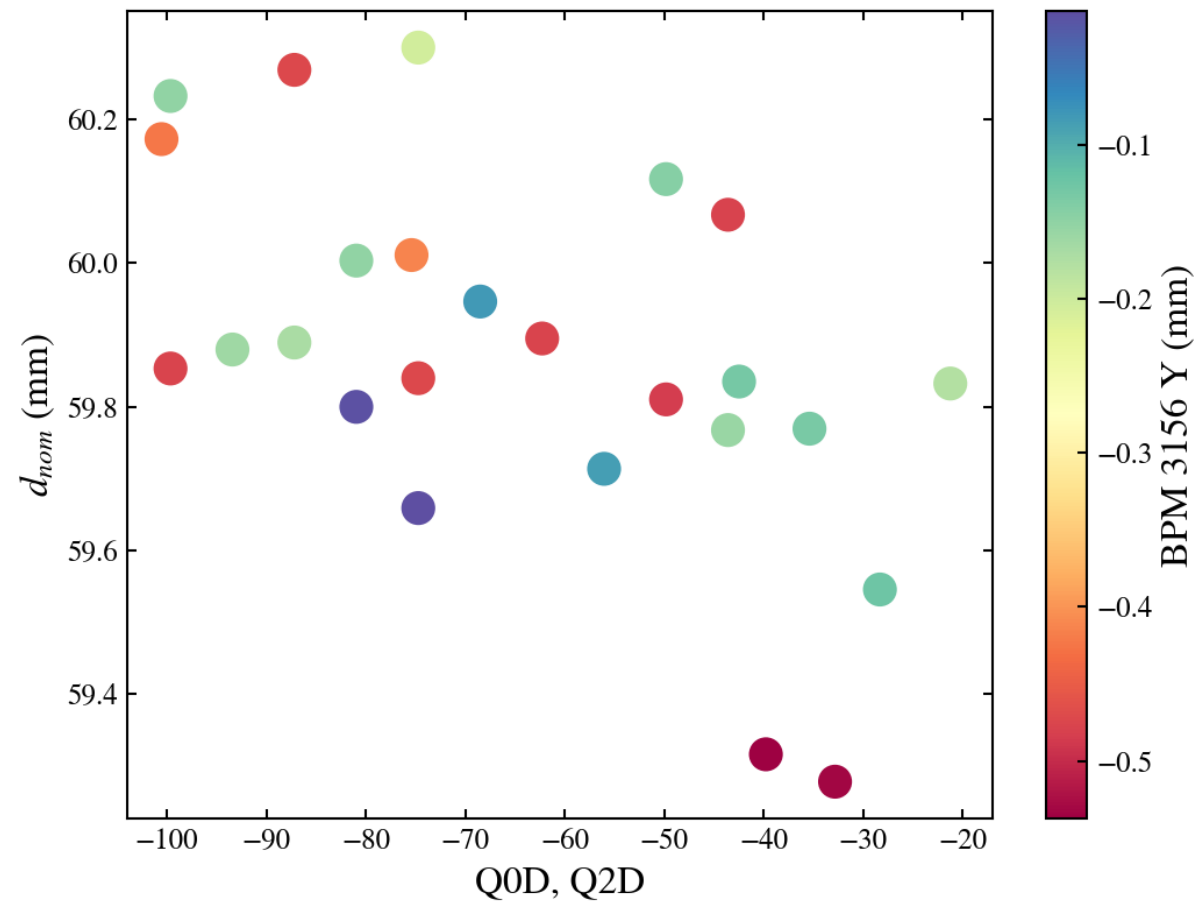
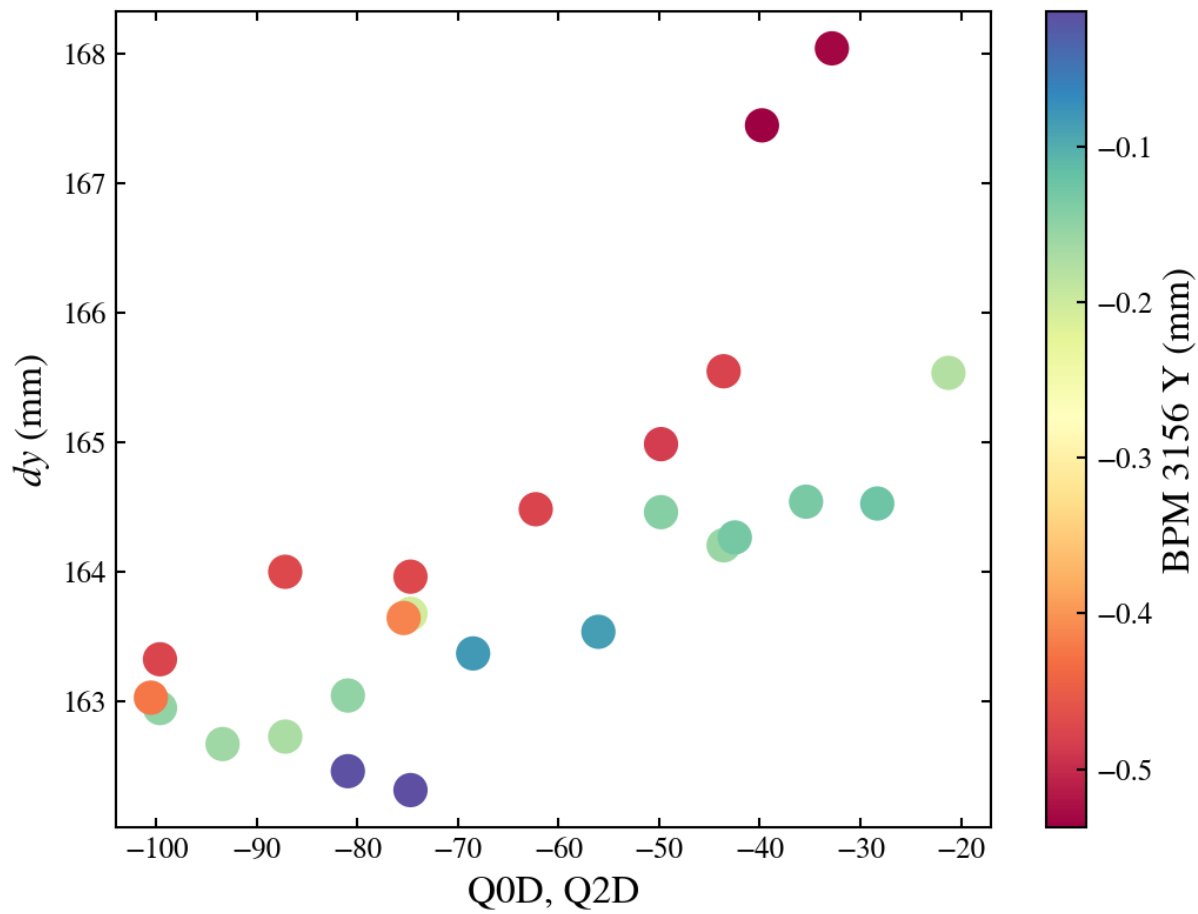
Secondaries/beam loss bottom



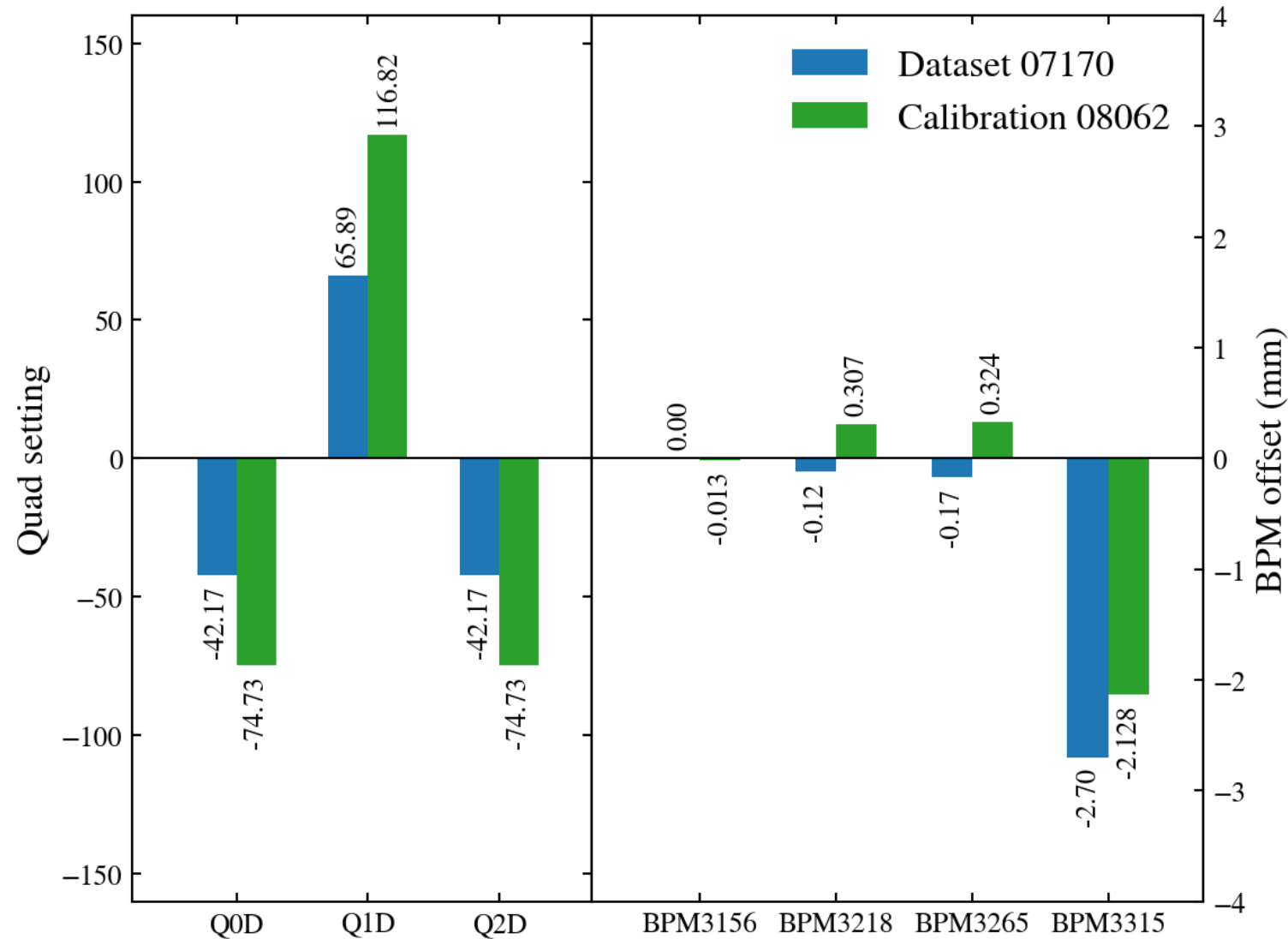
Energy calibration



Energy calibration depends on imaging energy and orbit



Matching energy calibrations to the datasets





Questions?

E300 Collaboration Meeting

June 24, 2024