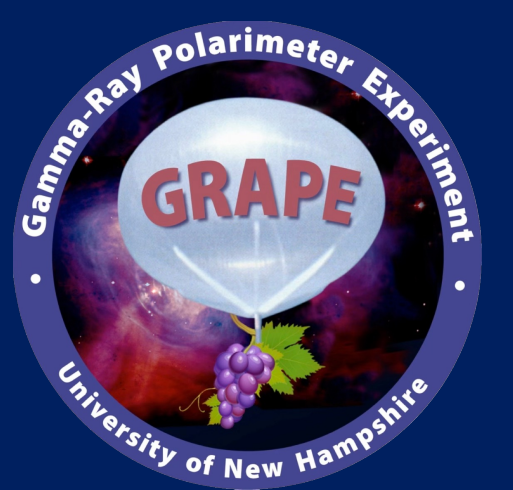


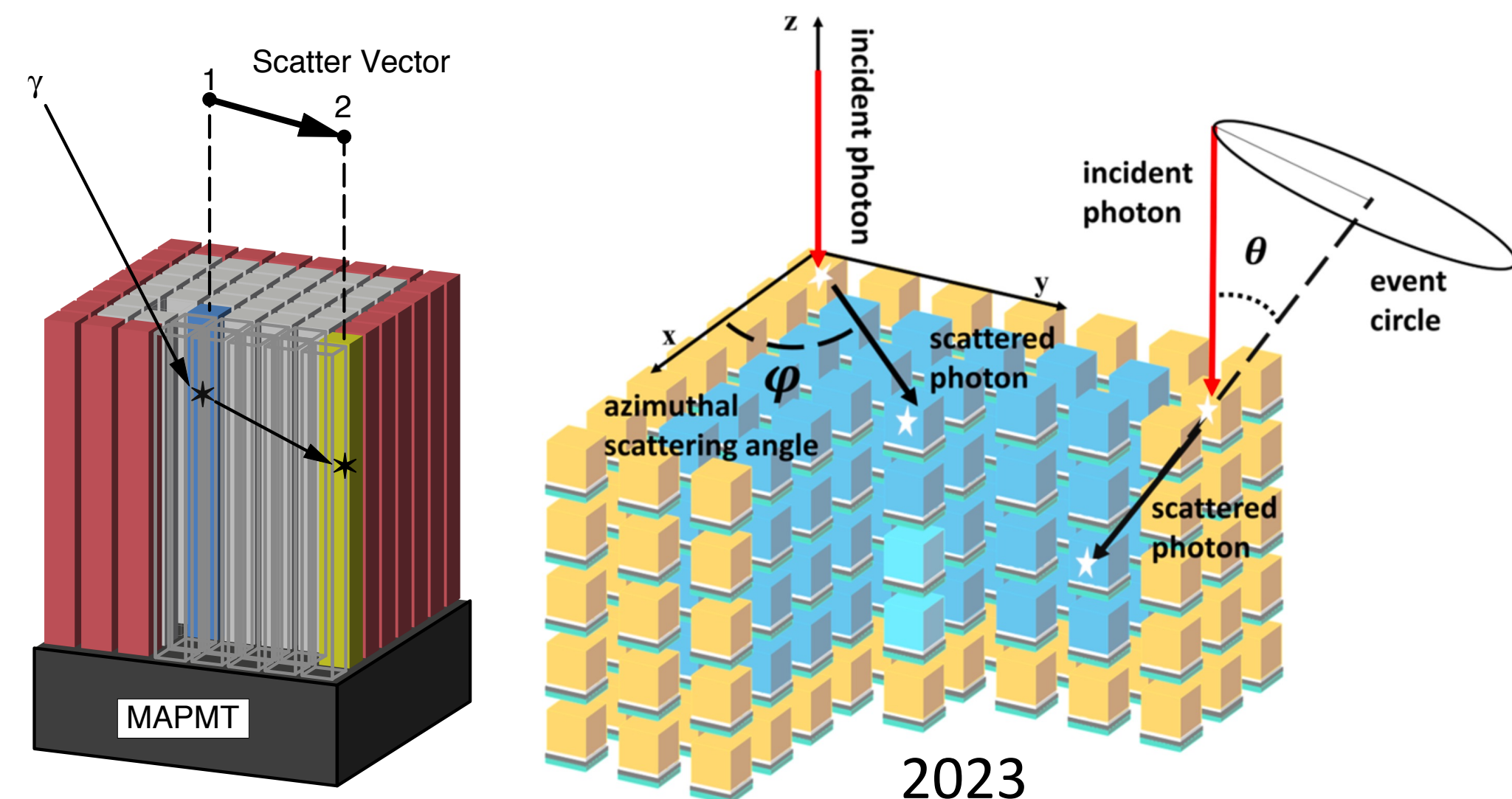


Gamma Ray Polarimeter Experiment (GRAPE)

The GRAPE balloon program has been developing instrumentation for measuring polarization from gamma-ray bursts with the goal of conducting long-duration flights from Antarctica.

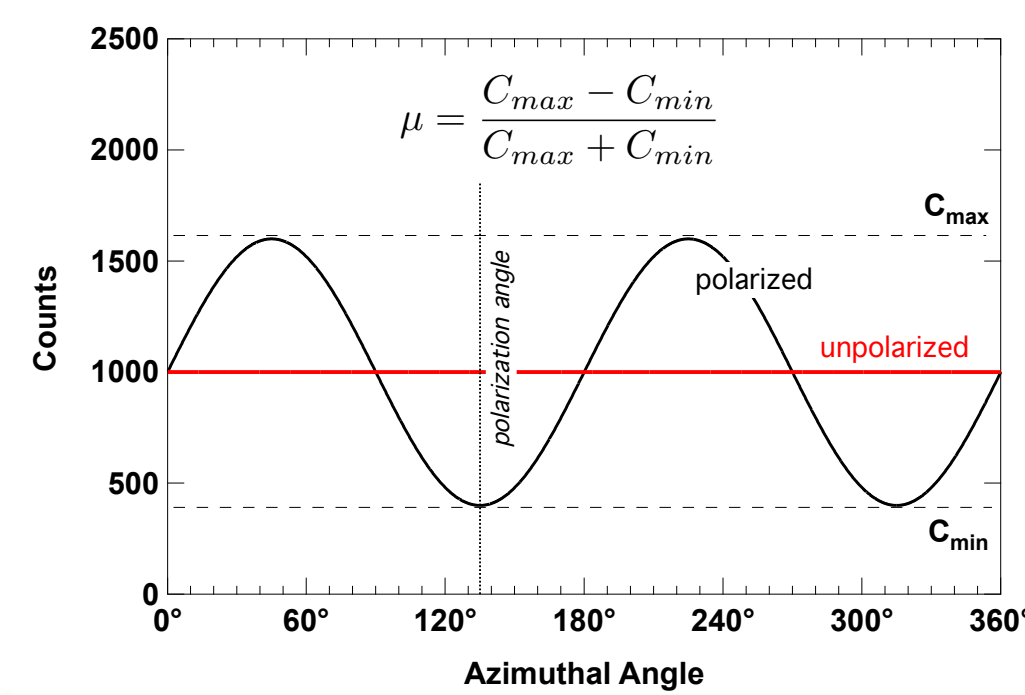


Gamma-Ray Polarimetry

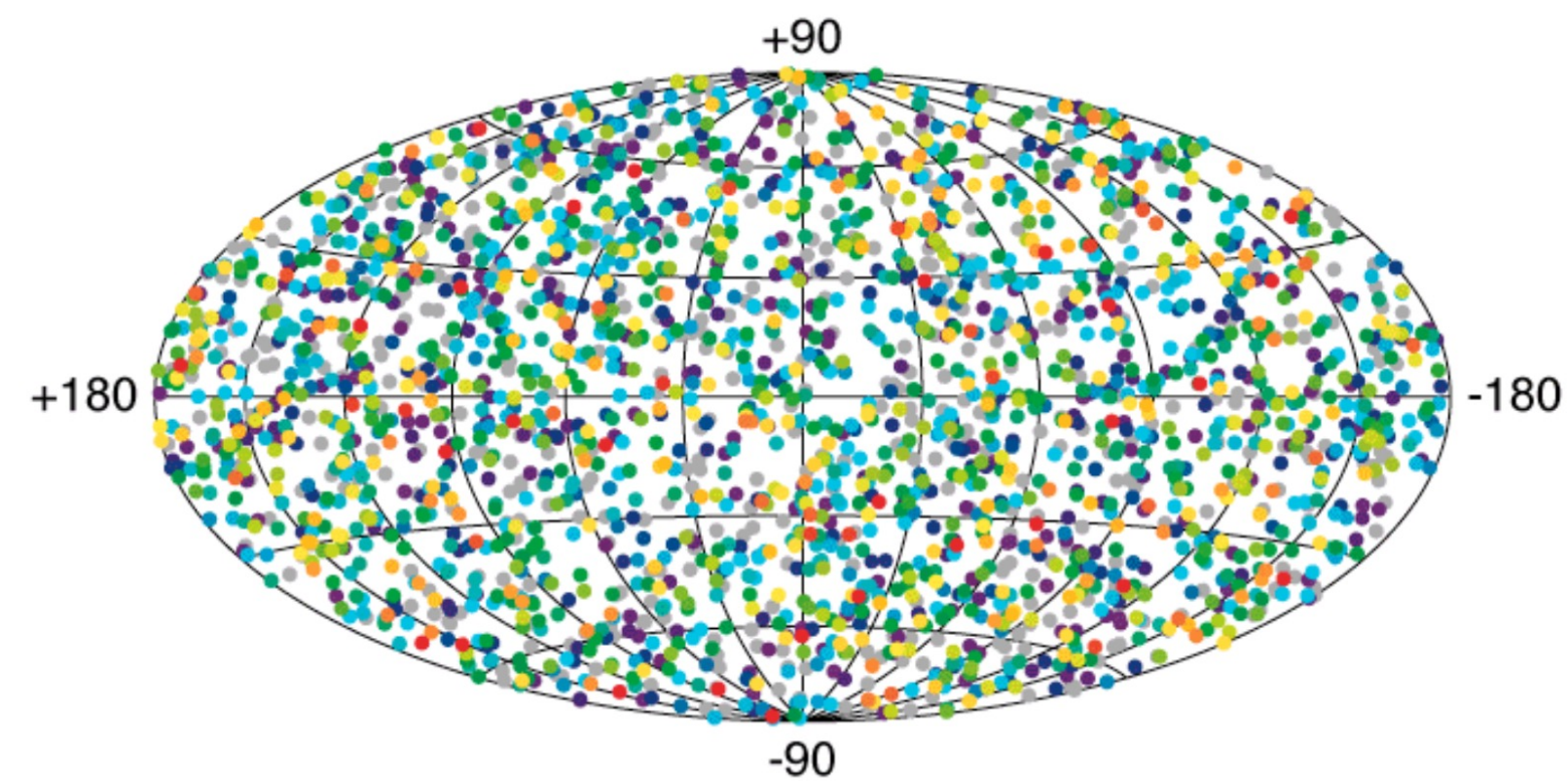


2011, 2014

2023

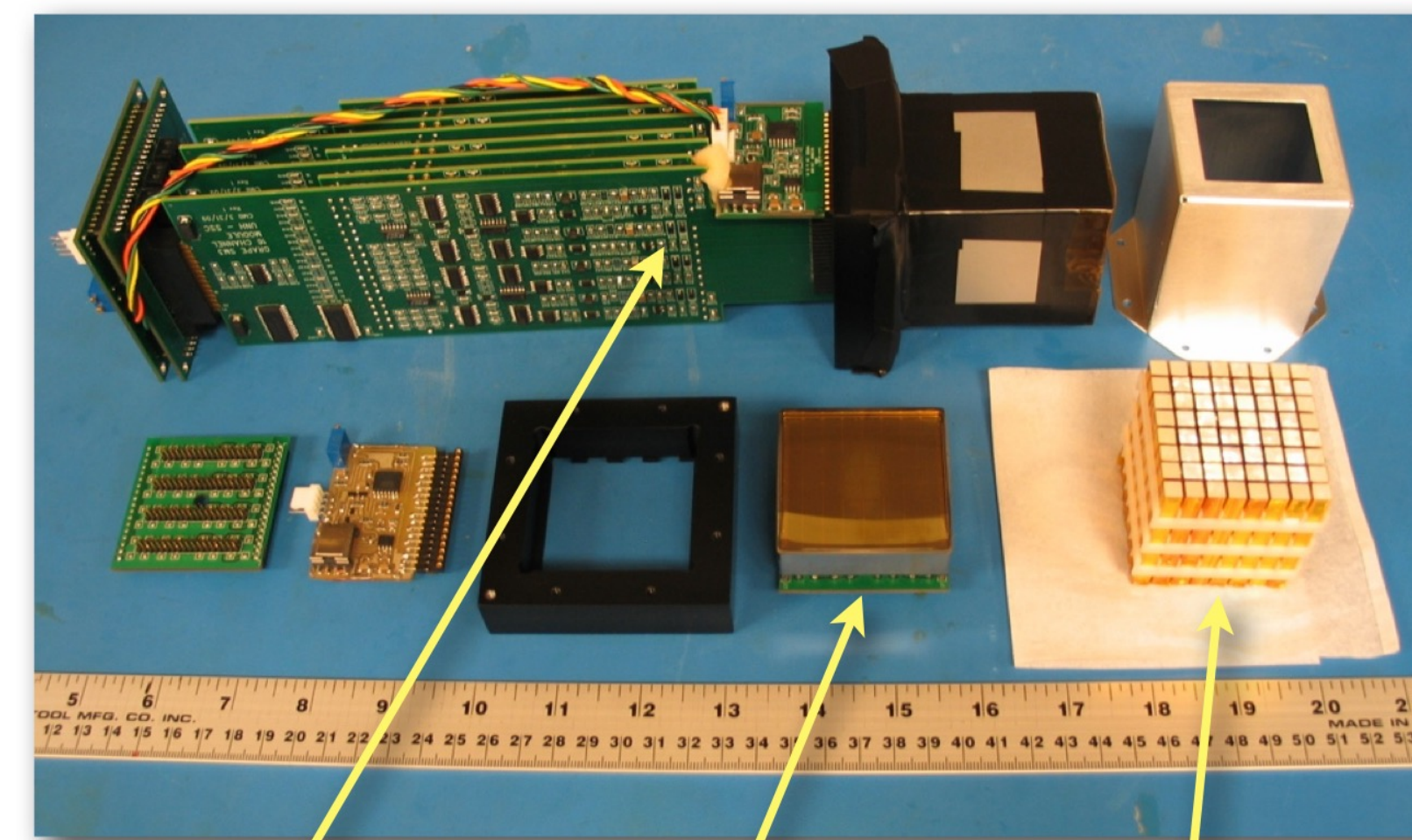


Compton scattering of gamma-rays off electrons provides a signature of polarization.



The random distribution of GRBs on the sky requires a large FoV instrument.

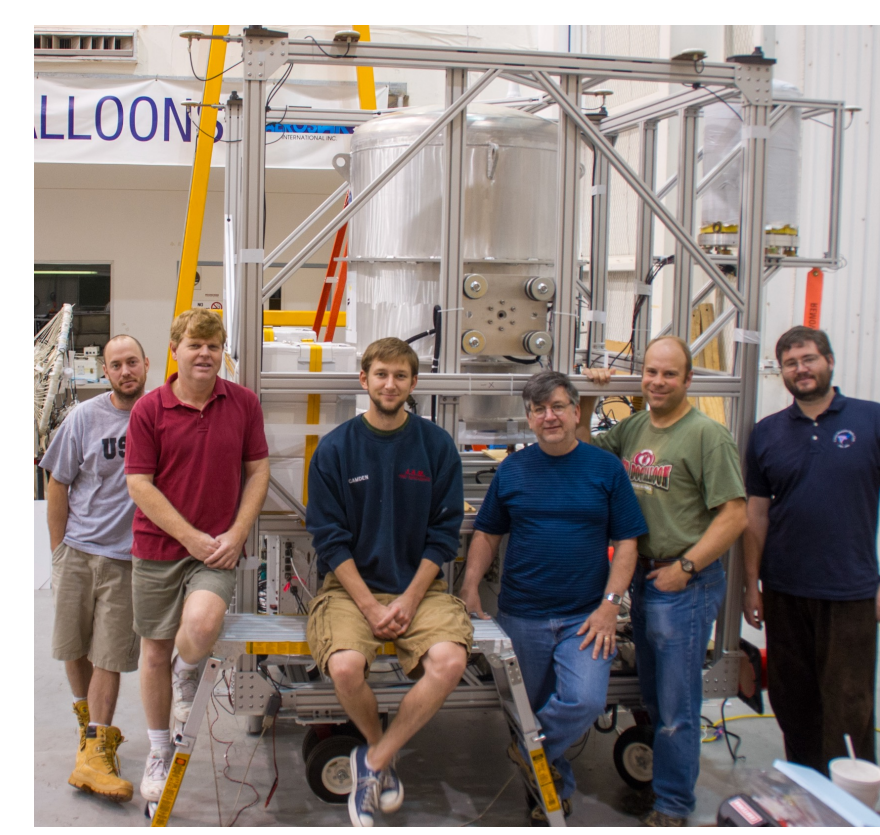
GRAPE – 2011, 2014



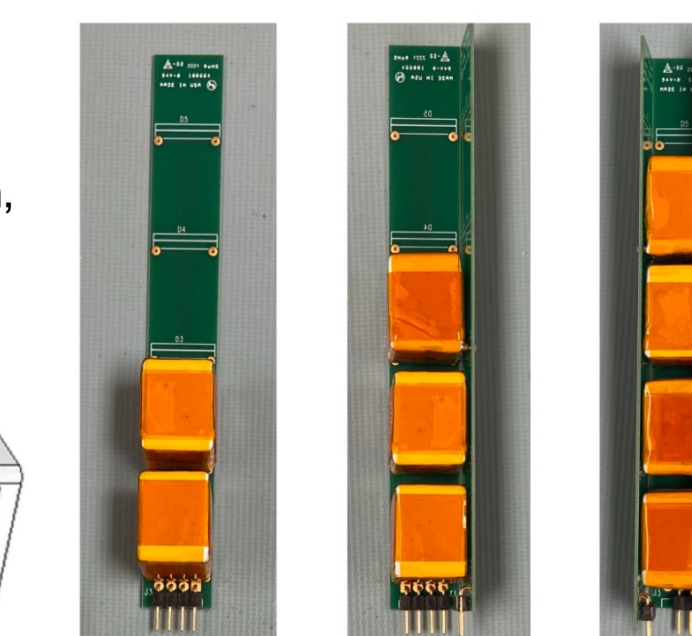
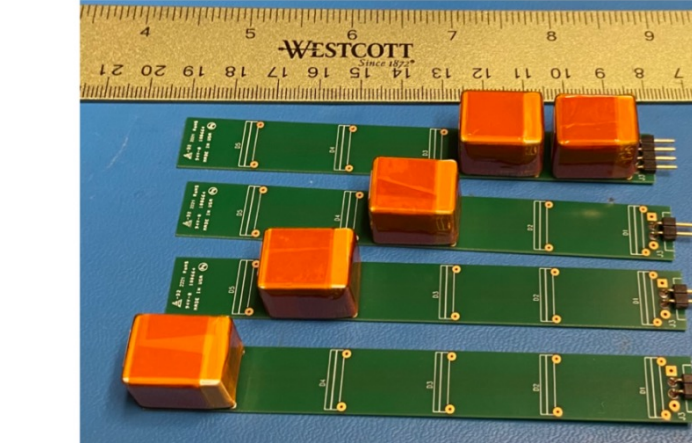
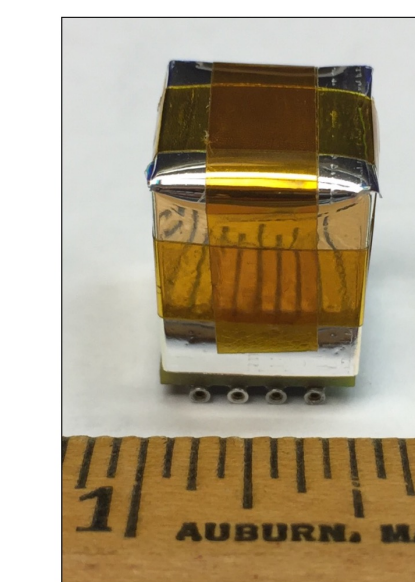
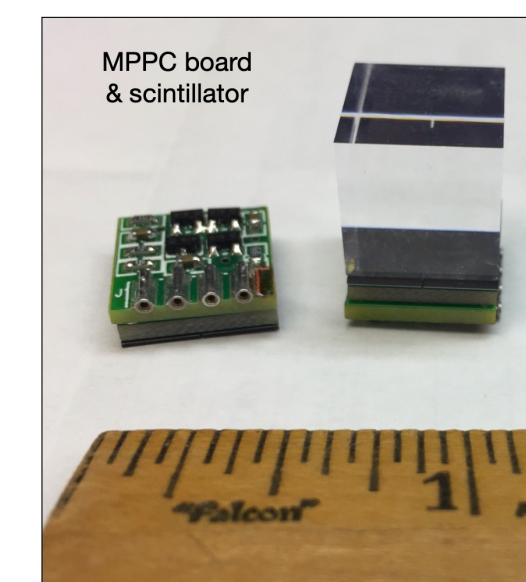
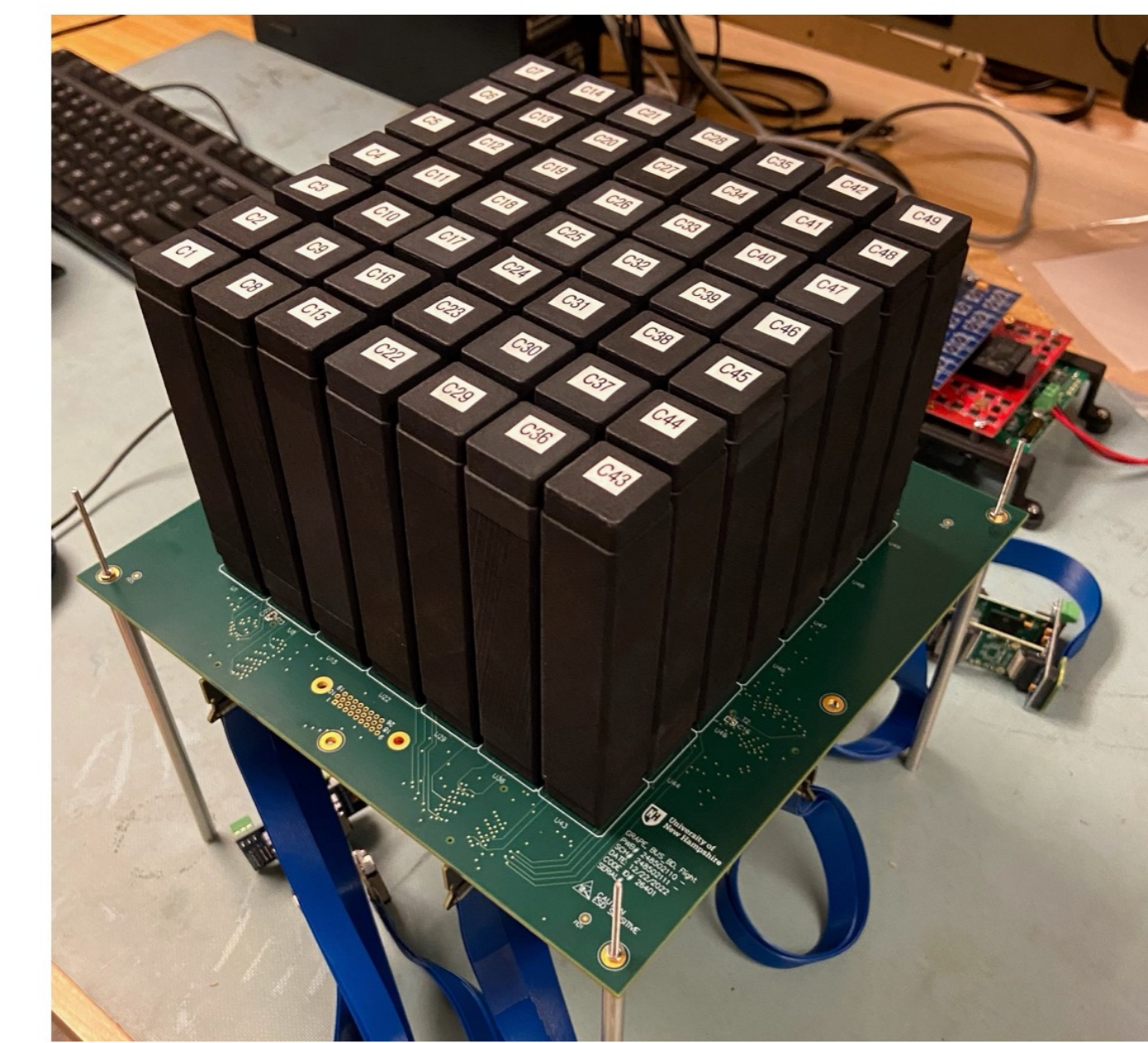
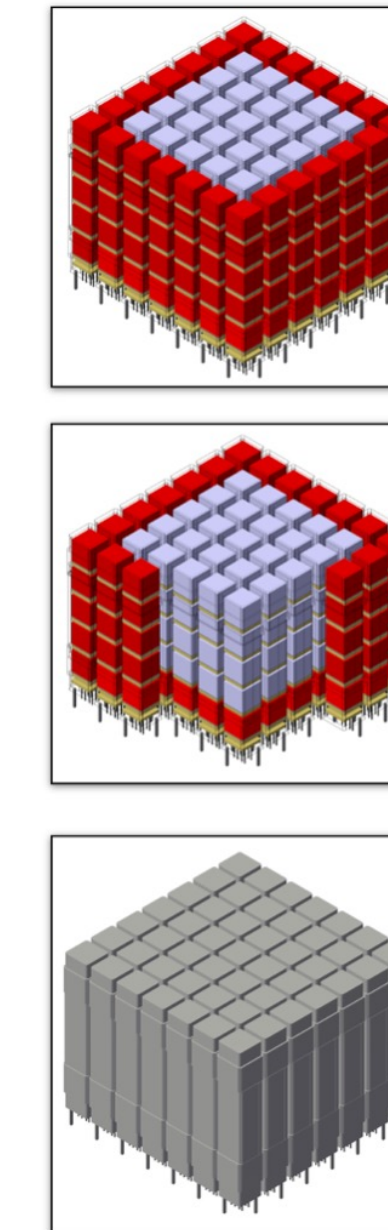
assembled module

MAPMT

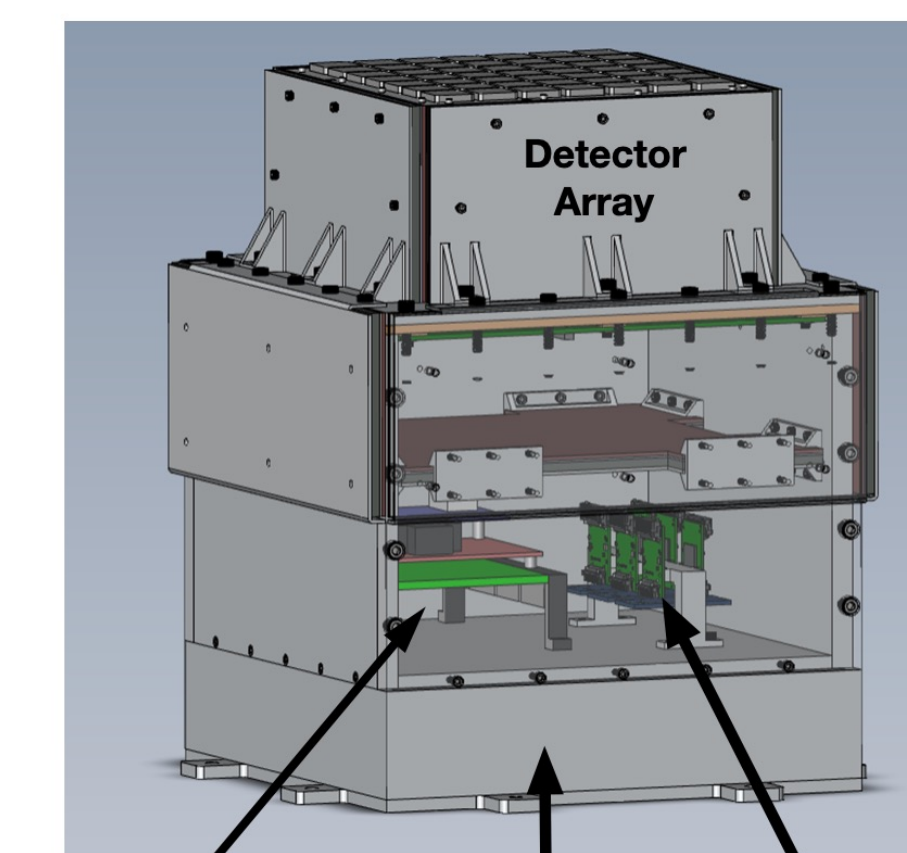
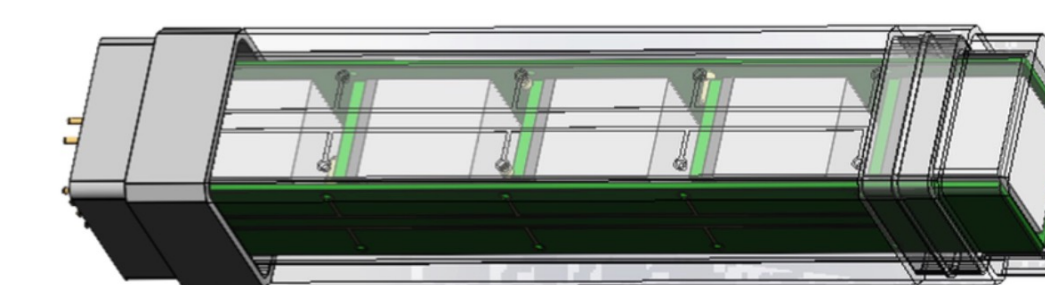
scintillator array



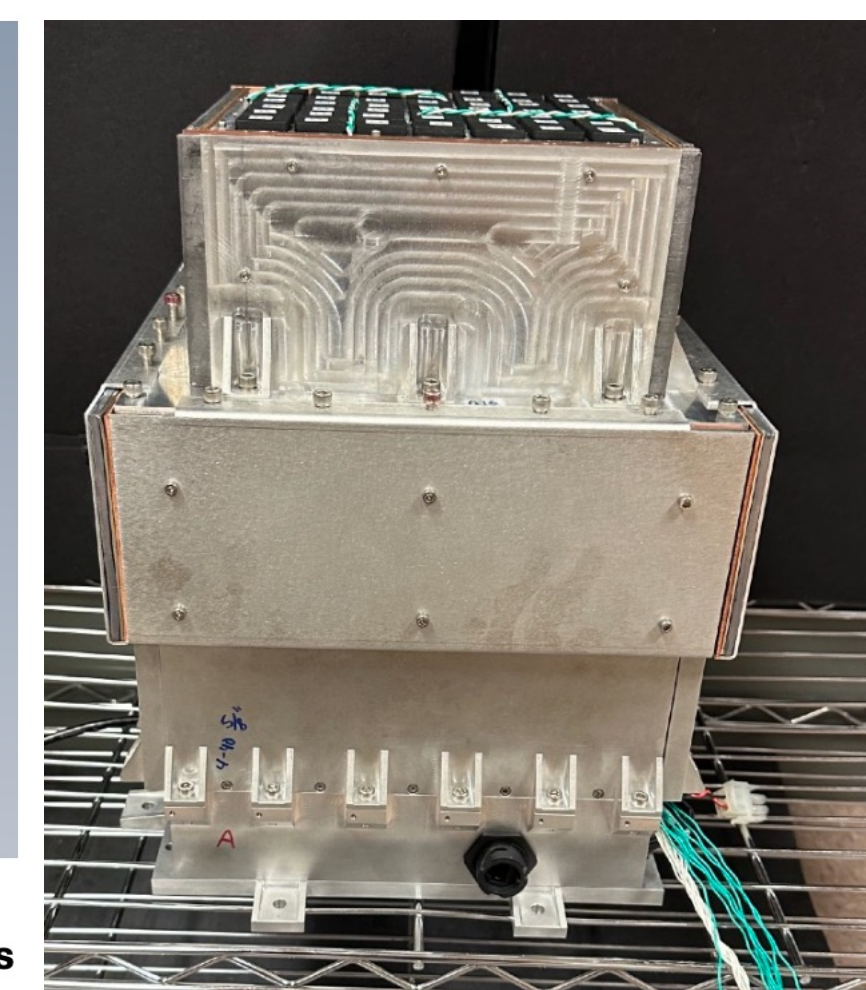
GRAPE – 2023



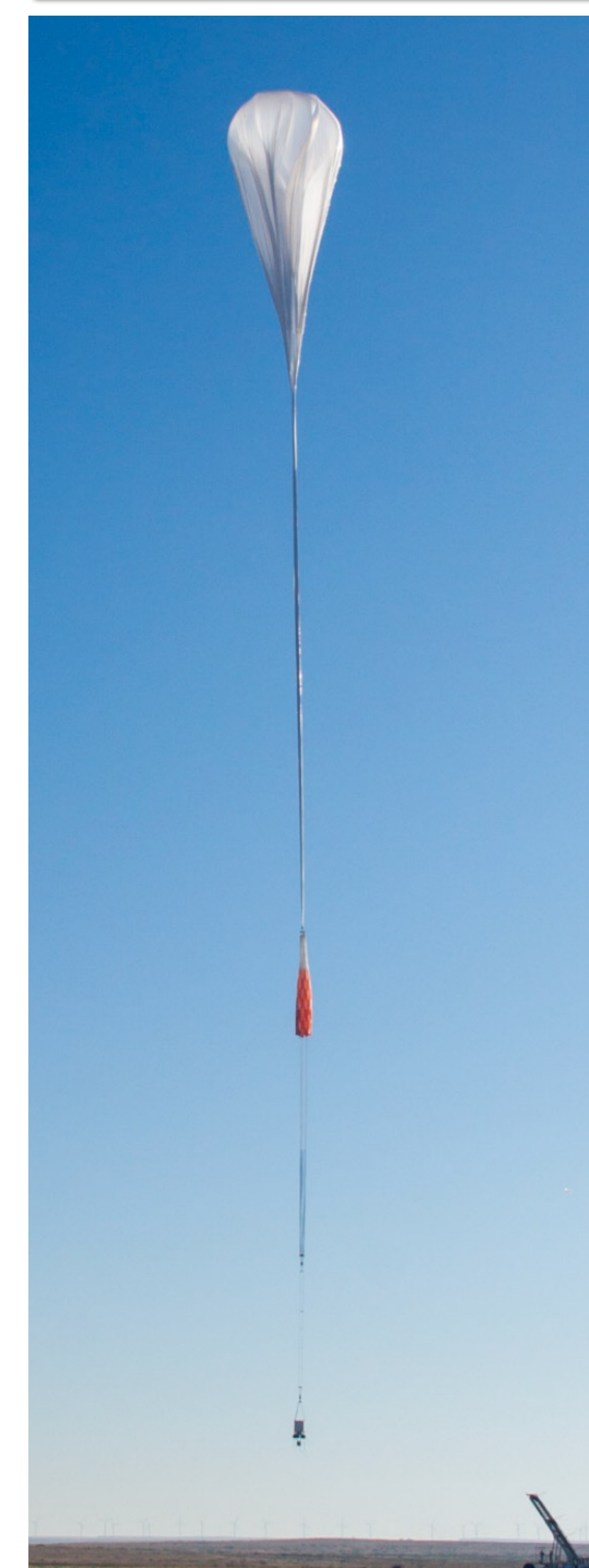
Each scintillator cube is 12.5 mm x 12.5 mm x 12.5 mm, with MPPC readout. A total of 245 of these units make up the full detector.



FPGA Board Fitlet Computer ASIC Boards



Ballooning



balloon launch



at float