

## Alpha particle experiment data set information:

Recorded 27/03/2020

- The pressure that each energy spectrum is recorded at is indicated in the filename, which is of the format “xx\_yymbar.mca”. The pressure is xx.yy kilopascals (not mbar!).
- The resolution of the pressure readout is  $\pm 0.01$  kPa, and the accuracy of the measurement is 0.25% (see data sheet for the vacuum gauge in the Resources folder).
- Data was recorded at a laboratory temperature of  $21.0 \pm 0.5$  °C.
- Data files recorded between 0.00 mbar up to 101.39 kPa are provided. For these spectra, the threshold on the MCA unit was set to 42. Acquisition time is 100 seconds (live time).
- A data file recording the spectrum at 0 kPa, but with the threshold on the MCA set to 4, is provided so that the noise floor of the detector/amplifier system can be evaluated. This file is named: “background\_threshold=4.mca”
- Data files can be viewed (for processing) using the ADMCA software which is available on the Moodle site. This software only works with Windows. For Mac computers, it can probably be run in a virtual Windows environment. A link to the software, with instruction on installation is on the Moodle page or for a download you can visit <https://www.amptek.com/internal-products/mca8000a-multichannel-analyzer-software-downloads>
- Data files are plain text. You can easily import/view/process the data files using Matlab, Python, Excel, etc if you wish (rather than using ADMCA).