

# QuARC – A Quality Assurance Range Calorimeter

- Daily beam range quality assurance is critical to ensure patient safety in proton therapy.
  - Often compromise between speed and accuracy.
- QuARC is a series of plastic scintillator sheets coupled to photodiodes to measure scintillation light emission from protons.
- With quenching corrections, can reconstruct proton depth-dose curves in real-time and measure proton range to sub-mm precision.
- Prototype tested at UCLH proton therapy centre: **range accuracy within 0.5 mm** and **real-time reconstruction up to 40 Hz**.

