

Imaging devices for medicine and security

A. J. Boston

Nuclear Physics Group, Department of Physics, University of Liverpool, UK

Contact email: *A.J.Boston@liverpool.ac.uk*

Studying the structure of the nucleus at the frontiers of nuclear stability presents a number of difficult challenges. The advent of radioactive ion-beam facilities has required a step change in the sensitivity of the nuclear instrumentation required to study the expected new and exciting nuclear phenomena. The detection of gamma radiation is at the heart of nuclear structure physics experiments and is key to the success of many industrial and medical applications involving gamma ray imaging. Projects such as the Advanced Gamma Tracking Array (AGATA) in Europe and the Gamma-ray Energy Tracking Array (GRETA) in the United States have pushed the technical boundaries needed to realise spectrometers capable of measuring nuclei far from stability.

This presentation will focus on how the technology designed for Nuclear Physics experiments has found application in areas outside of the core physics programme. Sensors developed for Medical, Security, Environmental and Nuclear imaging systems will be presented and discussed. The prospects for multi-modality imaging systems will be highlighted and opportunities for future research and development identified.