

Portable African Neutron-Gamma Laboratory for Innovative Nuclear Science

The Portable African Neutron-Gamma Laboratory for Innovative Nuclear Science (PANGoLINS) [1] project aims to investigate measurements of both gamma rays and neutrons which forms an important component part on site or in transit and the detection of both fissile material for the use in decarbonised energy sources or disposal thereof. A core component of the project is to miniaturize the weight of the gamma ray detection device and associated infrastructure so that it can be loaded on an unmanned aerial vehicle to enable access to and enhance performance of radiation monitoring measurements at remote sites leading to autonomous operations.

PANGoLINS incorporates commercial detector assemblies of LaBr₃(Ce), SrI₂(Eu) and/or CLYC(Ce) for spectroscopy. In addition, the project encompasses the instrumentation of other scintillation detectors with silicon photomultiplier technologies. The coupling of these to readout devices such as high-density ADC readout are planned for applications for nuclear science, medical imaging [2] or astronomy.

An overview of the project, its progress and potential outcomes will be presented.

References

- [1] Jones, P. et al., IEEE Nuclear Science Symposium (2025) DOI: 10.1109/NSS/MIC/RTSD57106.2025.11286641
- [2] Hart, S. et al., IEEE Nuclear Science Symposium (2025) DOI: 10.1109/NSS/MIC/RTSD57106.2025.11287197

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Track Classification: Environmental Measurements