

The new portable spectrometric gamma imaging system NuVISION

The NuVISION compact portable spectrometric gamma camera developed by a shared Nuvia-Leti lab, detects, locates and identifies sources of radiation in real time.

Supporting Innovation

Nuvia is a nuclear specialist and an expert in the security and safety of installations and people.

It has harnessed its on-site detection and mobility requirements to develop a light, compact and autonomous device that is capable of meeting the needs of the nuclear industry, the environment and security requirements.

This portable spectrometric gamma camera allows users to not only detect but also measure a dose rate, localize the source and identify the radioisotope, thanks to excellent spectrometric ability on a wide energy range (20-1400keV). Additionally, the processing speed makes it possible to perform real-time imaging and to observe mobile sources.

The detector's sensitivity to gamma rays makes it a highly reliable product accessible to a wide range of users, operators and experts. It is marketed under the NuVISION brand.



The client needs

Nuvia designs, manufactures and distributes both standard and specific radiation protection and measuring equipment for all stakeholders in the nuclear industry and sensitive sectors, under the NUVIATech instruments brand. Its R&D teams use state-of-the-art technologies to design products of excellence in the nuclear safety and security arena.

Gamma imaging is used for homeland security, dismantling, safeguards and dose monitoring which covers conflicting requirements: sensitivity, high dose rate capability, energy resolution, field of view, angular resolution.

To satisfy all of these requirements, we need to combine coded aperture, which provides sensitive and accurate imaging but with limited field of view, and Compton imaging which allows all-directional imaging but with limited angular resolution.

NuVISION – which was unveiled at Millipol 2017 – takes up these challenges and is now part of the Nuviatech instruments catalogue.

Partnership

Carnot Institute Leti is a CEA Tech institute dedicated to micro and nanotechnologies and integrating these technologies into systems. Leti researchers worked in a shared lab alongside NUVIA R&D teams to reconcile the seemingly contradictory requirements of this portable gamma camera.

CZT (CdZnTe) semiconductor detectors are used and specific algorithms make it possible to combine Compton scattering with coded aperture to build multi-isotope images and cover wide angles. Rapid processing time also enables fast reconstruction and real time imaging, endowing the system with exceptional qualities. This joint lab is continuing its research to improve camera ergonomics and design and to ease camera operation for the end user as well as catering to the needs of experts. This makes the product even more effective and enables it to be used more extensively.