

# PRESS RELEASE

Lyon, February 04, 2026

## Exosens and Gemesis join forces to integrate neutron imaging at the heart of modular and transportable test systems

Exosens, a global leader in advanced detection technologies, and Gemesis, an engineering company specialized in test systems for critical technologies, announce the signing of a strategic partnership aimed at developing neutron imaging technologies integrated into containerized, modular, and transportable systems developed by Gemesis.

### A project initiated and validated through the e-BOOST program

This partnership builds on work carried out under the e-BOOST program, during which both companies demonstrated the industrial relevance of the technology, validated the performance of Exosens detectors, and identified the key technical, regulatory, and operational challenges associated with integration in constrained environments. This preliminary study phase laid the technical and industrial foundations of the project now underway.

### Modular systems for complex test environments

Gemesis' approach is based on modular and containerized test systems capable of rapidly adapting to the specific constraints of each application. These solutions are intended for complex environments such as batteries, hydrogen, cryogenics, ATEX environments, and certain defense-related applications, particularly for the analysis of components incorporating energetic materials.

Designed to be transportable and reconfigurable, these systems can be deployed on industrial sites, in R&D centers, or on secure sites, while enabling the analysis of products subjected to severe constraints in terms of pressure, temperature, or reactive atmospheres.

### Industrial and defense use cases

Neutron imaging enables non-destructive analysis of internal phenomena inaccessible to conventional techniques, particularly for hydrogen-rich materials or complex assemblies.



## Examples of targeted applications :

### Batteries

- Detection of internal defects (poor electrolyte distribution, porosity, cracking)
- Observation of aging mechanisms
- Analysis of electrochemical behavior under operando conditions

### Hydrogen, fuel cells, and electrolyzers

- Visualization of water distribution in membranes
- Analysis of gas/liquid two-phase phenomena
- Monitoring degradation of active components

### Tanks and storage

- Observation of two-phase phenomena
- Study of hydrogen absorption and release mechanisms (hydride materials)

### Defense applications

- Control of homogeneity of functional powders
- Non-destructive analysis of activation components
- Detection of internal defects without opening or altering systems

## Coupled and operando testing

The systems developed by Gemesis enable direct coupling between neutron imaging and instrumented test equipment (electrical, fluidic, thermal, or mechanical), making operando testing possible with real-time observation of the internal behavior of components under load..

## A first experimental neutron imaging demonstrator in the Lyon region

As part of this partnership, Gemesis plans to develop a first experimental neutron imaging center in the Lyon region, aimed at promoting this imaging solution for industry and research. The establishment of this center will be subject to obtaining regulatory authorizations and safety approvals from the ASNR.

In the longer term, the partnership also aims to deploy turnkey systems directly at customer sites industrial or secure for specific test campaigns, particularly for applications related to liquid hydrogen or energetic components.



## A project supported by France 2030

Gemesis is a laureate of the France 2030 program, which funds the study and design of the modular neutron imaging system.

Within this framework, Gemesis has launched a fundraising round to:

- Finalize its modular test center
- Acquire the first complete neutron imaging system
- Accelerate industrialization and deployment of the solution

## About Exosens

Exosens is a global leader in advanced detection, imaging, and instrumentation technologies serving the defense, scientific research, nuclear, and industrial sectors. The group is recognized for its expertise in neutron detectors and high-performance detection systems.

## About Gemesis

Based in Lyon, Gemesis specializes in the design of advanced test benches, special-purpose machines, and containerized systems for battery, hydrogen, energy, and defense technologies. The company also develops software solutions dedicated to operando testing and complex instrumentation.

## Quotes

### Samuel GUESNE, Director of Gemesis

« Exosens' technology, combined with our expertise in integrating and implementing advanced test benches, will enable our clients to detect and analyze behaviors that were previously inaccessible, at now-controlled costs. The signing of this partnership marks a key milestone, allowing us to enter a structured R&D phase and approach our future fundraising efforts with confidence. »

### Olivier Merlin, Neutronis Program Director, Exosens:

« At Exosens, we are highly motivated by the prospect of developing with Gemesis a mobile imaging solution capable of expanding the scope of quality control to materials that X-rays cannot detect, such as lithium, hydrogen, and organic elements, thereby supporting the industrialization of future zero-emission technologies with a suitable and high-performance tool. »





## Press contacts

GEMESIS – Samuel Guesne : Director

 [contact@gemesis.fr](mailto:contact@gemesis.fr) |  [www.gemesis.eu](http://www.gemesis.eu)

EXOSENS – Olivier Merlin : Group Security Officer Neutronis Program Manager

 [o.merlin@exosens.com](mailto:o.merlin@exosens.com) |  [www.exosens.com](http://www.exosens.com)

