

RIBER and the Toulouse-based LAAS-CNRS set up the joint laboratory EPICENTRE focused on MBE process optimization and automation



Bezons, June 29, 2021 – 8am – RIBER, the global leader for molecular beam epitaxy (MBE) equipment serving the semiconductor industry, and the CNRS Laboratory for Analysis and Architecture of Systems (LAAS-CNRS) in Toulouse are announcing the creation of the joint laboratory EPICENTRE / LAAS - RIBER, within which they will share, for a six-year period, their respective expertise in MBE (Molecular Beam Epitaxy).

EPICENTRE serving the MBE Dream

The objective with EPICENTRE is to put in place a strategy for technological innovation in the MBE field through joint governance and a research plan designed to open up the development of a series of technological components.

The first technical pillar involves developing a series of complementary, non-destructive in-situ metrics tools that ensure ultimate control over epitaxy processes for complex materials. Its ambition is to provide solutions to significantly improve MBE processes with a view to offering increased automation, stability and reproducibility for growth processes across all of the ranges of Riber machines.

EPICENTRE's second technical pillar is to develop a dedicated solution for superconductor materials growth for the datacom sector, focused in particular on quantum computing, specifically addressing the technological obstacle of epitaxy at cryogenic temperatures. Its ambition is to invent new hybrid epitaxially grown interfaces that will form the basic building blocks for future spintronics and quantum components.

Solutions for growing complex components (VCSEL, multi-junction solar cells) will also be developed with a view to demonstrating the efficiency, effectiveness and relevance of these in-situ metrics tools with a view to mass production.

Alongside this, EPICENTRE will launch work on machine learning, an area with strong expectations for the MBE community, looking to optimize the analysis of materials growth processes.

Program driving innovation

This program aims to design an MBE platform, currently unrivalled on the market, focused on III-V and superconductor complex structures growth and incorporating automated advanced control processes.

The Toulouse LAAS-CNRS micro-nano technology unit will therefore soon be receiving a platform provided by Riber. This platform will be fitted with an instrumentation range that is fully integrated with Riber's process control software Crystal XE, with features including the in-situ monitoring and control of epitaxial growth parameters. All of these parameters and the corresponding ex-situ characterizations will be compiled in a knowledge base.

This collaboration, supporting innovation, will ultimately make it possible to extend the overall approach to cover Riber's entire range of research and production machines.

Building on a longstanding relationship

The creation of the joint laboratory EPICENTRE will further strengthen the partnership between LAAS-CNRS and Riber, which have had a close relationship for the past 35 years. Illustrating this, LAAS-CNRS has trained a number of Riber staff on MBE technology, has developed a number of demonstrators and characterizations for the Company's clients, and is now a showcase for Riber's know-how.

In 2019, Riber acquired the license to use a patent for an LAAS-CNRS measurement instrument, EZ Curve, enabling the real-time monitoring of substrate curvature for constrained epitaxy. This instrument, whose sales were launched by Riber at the start of 2021, makes it possible to monitor changes in constraints and determine alloy thickness and concentration levels with significantly higher precision than rival products.

The creation of EPICENTRE will make it possible to capitalize more effectively on the joint technological innovations.

Through EPICENTRE and the simplification of MBE machine use, Riber is further strengthening its value creation strategy serving semiconductor users, researchers and manufacturers.

About RIBER

RIBER is the global market leader for MBE - molecular beam epitaxy - equipment. It designs and produces MBE systems and evaporators for the semiconductor industry. It also provides technical and scientific support for its clients, maintaining their equipment and optimizing their performance and output levels. Through its high-tech equipment, RIBER performs an essential role in the development of advanced semiconductor systems that are used in numerous consumer applications, from information technologies to 5G telecommunications networks, OLED screens and next-generation solar cells.

RIBER is a BPI France-approved innovative company and is listed on the Euronext Growth Paris market (ISIN: FR0000075954).

www.riber.com

About the Laboratory for Analysis and Architecture of Systems (LAAS-CNRS)

With over 650 people, the Laboratory for Analysis and Architecture of Systems is one of the French National Centre for Scientific Research's largest in-house research units. To anticipate the major interdisciplinary challenges relating to our rapidly evolving society, the LAAS-CNRS has identified key strategic areas based around the four core fields that have been the laboratory's trademark since it was created in 1968: automatic systems, robotics, IT and micro and nanotechnologies. Within these disciplines, six scientific departments coordinate the activities of the 25 research teams and define the areas that we will focus on over the coming years, particularly in the space, transport, energy, industry of the future, and health / environment sectors.

Research at LAAS requires powerful experimental facilities and technology. These resources are shared around the laboratory's five technology platforms, which are constantly evolving.

The micro and nanotechnology platform that will house the joint laboratory's MBE equipment is a member of the French network of high-end facilities in the field of micro and nanotechnology, Renatech. This is a 1,600 sq.m cleanroom open to collaboration with the academic world and industrial sector.

www.laas.fr

<https://www.laas.fr/public/en/micro-and-nanotechnologies-platform>

<https://www.renatech.org/en/>

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