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Surrey Uni joins top beam team

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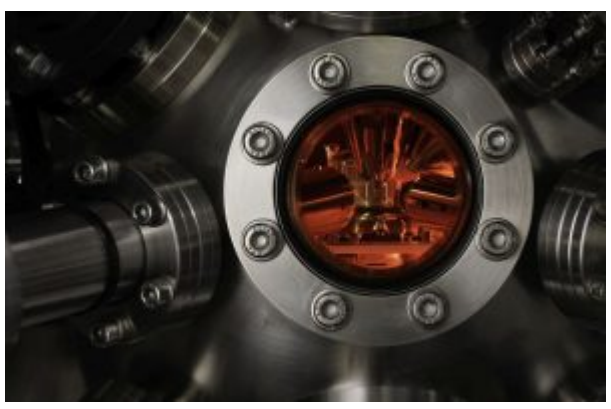

The creation of a first-of-its-kind imaging system at the **University of Surrey** could help the UK lead a revolution in materials sciences. The new facility promises a better understanding of the effects of pharmaceuticals and could eventually lead to better drug development.

Thanks to a £3 million grant from the Engineering and Physical Sciences Research Council, Surrey will work with the UK SME Ionoptika and the University of Manchester to deliver a new Multimodal Ion Beam Imaging Facility, which will allow researchers and businesses to understand materials at an unprecedented microscopic level.

Professor **Melanie Bailey**, Principal Investigator of the project from the University of Surrey, said:

“The fact that Surrey and, indeed, the UK has the ambition to build this truly unique facility should not only excite researchers in academia and industry, but it signals that we are serious about breaking new ground in a range of scientific areas.”

The facility will house a “multimodal 3D elemental and molecular imaging system at a sub-micron scale”. This highly advanced system, similar to a powerful microscope, will be able to see the tiniest details of materials and molecules, smaller than a speck of dust.

The new system will be the first in the world to use beams of charged particles at high and low energies to measure biological systems and materials. The high-energy beams will be delivered by a particle accelerator at the UK National Ion Beam Centre, a national research facility funded by EPSRC and led by Professor **Roger Webb** at Surrey. The system will produce X-rays, gamma rays, and particles, and the combination of this information will give a detailed map of the elemental and molecular makeup of materials.

Professor Roger Webb, co-investigator of the project and Director of the Surrey Ion Beam Centre, said:

“This is a really exciting development for the Surrey Ion Beam Centre. We have been a national research facility since 1979, and we support over £100 million in funding from more than 30 universities. This is one of several upgrades to our centre, and we are looking forward to opening our doors to researchers across the UK to make the most of this investment.”

Surrey’s new facility is expected to benefit more than 25 UK universities and companies in health, energy, technology, and engineering.

Professor **Paul Townsend**, co-investigator of the project, said:

“There is currently nothing in the world quite like this new facility of ours. It signals to the global scientific community that the UK means business. We are confident that we will attract researchers worldwide to use this facility, giving the UK an edge in materials science.”

Along with medical breakthroughs, Surrey’s researchers believe the facility could help the energy sector create more efficient solar cells and durable batteries. The team also hopes this project will allow them to understand pollutants better and develop new ways to reduce climate change.

Paul Blenkinsopp, Managing Director of Ionoptika, said:

“Ionoptika is delighted to have been chosen to build the new imaging system in collaboration with Surrey. Whilst an SME, we have established ourselves as global experts in ion beam technology over the past 30 years and will be very proud to bring our decades of imaging expertise to this unique facility.”

This project contributes to the United Nations Sustainable Development Goals (SDG), especially SDG 3 (Good Health and Wellbeing), SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action).

Image of Ionoptika’s J105