£1 million investment in STFC spin out

Private capital investors, Longwall Ventures and Rainbow Seed Fund, have recognised the value of an STFC spin out's new laser technology, investing £1 million. The technology - a mobile laser spectrometer – can be used for environmental monitoring, medical diagnosis and various other applications. The investment will enable the spin out, **MIRICO**, to do further testing and take the product to market.

The spectrometer, known as the Laser Isotope Ratiometer (LIR), was initially developed by RAL Space's Damien Weidmann and the Laser Spectroscopy Team for space exploration to measure gases in the atmosphere on Mars, however, the range of applications of the technology have brought its purpose back to down to Earth.

The LIR, MIRICO's first product, will provide a portable device capable of high precision, real time monitoring of stable isotopes. In the field of environmental monitoring it provides essential insight into the global carbon, water and nitrogen cycles, the building blocks of life on Earth.

In the field of medical diagnosis, measuring the stable isotope composition of breath enables the identification of disease states and offers new non invasive and fast diagnostic capabilities.

In the food and wine industry, stable isotope analysis is used to verify the origins and authenticity of goods. LIR allows real time, autonomous, stable isotope analysis in the field; current technologies are large and complex, requiring skilled personnel to operate them and are only suitable in laboratory or controlled environment where regular maintenance is required.

The laser analyser could revolutionise methods for monitoring gases with unrivalled precision, as its lightweight and robust design enables it to be used by anyone in the field, not just experts, to take measurements and receive results in real-time. In the last year, MIRICO has had successful trials with customers and partners at a volcano in Italy and is currently conducting trials in the US for use in medical diagnosis. MIRICO will use the investment to complete product development and get the instrument into production. "*The technology can bring great benefits to important global challenges. We look forward to working with customers and partners to develop a new range of advanced instruments*," said Mohammed Belal, Director of MIRICO.

In environmental monitoring, the instrument uses lasers to detect very low concentrations of greenhouse gases. Due to its precision in measuring stable isotopes it can detect the origins of carbon dioxide emissions, for example if they originate naturally from plant respiration or through the burning of fossil fuels. more



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Damien said: "Because of its highly demanding requirements, space science research efforts nurture new technologies widely applicable to terrestrial challenges. MIRICO fully exploits that in a creative way. We are planning to explore many sectors with our first product and are looking forward to collaborating with various industries and stakeholders to pioneer the next generation of laser analysers." MIRICO formed in January 2015 to market new technology being developed by STFC's RAL Space Laser Spectroscopy Team. Over the last decade, the team has grown to eight senior scientists, who have developed analytical instruments, capable of making precise measurements of gases in small amounts.

InnovationsNewsletter

Richard Brownsord and Johnny Chu from MIRICO Credit Mohammed Belal