

Device can identify the chemical composition of liquids sealed within non-metallic containers

April 29 2014, by Wendy Ellison



The Cobalt Light Systems team, from left to right: Pavel Matousek, Chief Scientific Officer; Guy Maskall, Data Scientist; Stuart Bonthron, VP Product Development; Craig Tombling, Chief Operating Officer; Paul Loeffen, Chief Executive Officer. Credit: Cobalt Light Systems

A new machine which can identify the chemical composition of liquids sealed within non-metallic containers without opening them is one of

three candidates announced today as in the running to win the UK's premier engineering prize, the MacRobert Award. Already being deployed in 65 airports across Europe, this innovation can protect travelers by screening for liquid explosives and could spell the end of the ban on liquids in hand luggage.

Based on research undertaken at the Science and Technology Facilities Council (STFC), Cobalt Light Systems has developed an [airport security scanner](#), the Insight100. It should enable airports to remove the existing hand-luggage liquid ban through phased implementation over the next two years.

The Insight100's underlying technology was first developed by STFC's Professor Pavel Matousek in a true 'eureka' moment at the Central Laser Facility. Professor Matousek said: "The technology works using the technique of Raman spectroscopy. When combined with advanced algorithms to distinguish between the container and its contents, the technology is able to identify the [chemical composition](#) in seconds, and with greater reliability than any other existing system."

Synonymous with spotting the 'next big thing' in the technology sector, the MacRobert Award is the UK's longest running national prize for engineering. It identifies outstanding innovation with proven commercial promise and tangible societal benefit.

Speaking about the shortlisting Professor Matousek, who is also Cobalt's Chief Scientific Officer, said that "It is wonderful to see this recognition for the work of the STFC spin-out company Cobalt Light Systems. To take such technologically advanced research and develop it in such a way that a successful solution to a key national security challenge has been found is fantastic. It is tremendously exciting to see that this research breakthrough has led to the development of a commercial product that has now been introduced in a total of 65 airports across Europe."

Paul Loeffen, CEO for Cobalt Light Systems, said, "Being selected as a finalist for the prestigious MacRobert Award is an incredible accolade for our team. It is hugely satisfying to see an academic discovery from a UK laboratory undergo several stages of innovation ending with deployment at international airports to enhance passenger security. The development of the Insight100 has been a multi-disciplinary engineering effort on very tight timescales and has culminated in dramatic commercial success over the last year."

The fundamental science behind the device could also be used for non-invasive cancer screening, detecting counterfeit goods, and food analysis in the future. This technique was originally used to help pharmaceutical companies verify medicines.

John Robinson FREng, Chair of the MacRobert Award judging panel, said, "Each of this year's finalists has demonstrated exceptional innovation and technical expertise but, perhaps more importantly, the significance of how this is being applied for the benefit of society is exceptional." The winner will be announced on 2nd July 2014 at the Academy's Awards Dinner at the Royal Opera House in London.

Provided by Science and Technology Facilities Council

Citation: Device can identify the chemical composition of liquids sealed within non-metallic containers (2014, April 29) retrieved 19 April 2024 from <https://phys.org/news/2014-04-device-chemical-composition-liquids-non-metallic.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--