Imagine identifying a malignant tumour without the need for invasive biopsies, or immediately detecting and identifying plastic explosives strapped to a passenger’s waist. This is the promise of terahertz (THz) radiation, a single technology that can detect and identify concealed materials.

Many people are already familiar with the technology in airports when they are scanned for objects underneath their clothes.

Holding back a broader range of applications is the lack of a compact, robust and cost-effective way of generating THz radiation.

With the support of the OptoFab Node of ANFF, Dr Andrew Lee and his group at Macquarie University are developing a THz laser system that will enable many new applications.

"We are developing frequency-tuneable lasers which will operate in the 1-4 THz frequency range, using an all solid-state laser approach," said Dr Lee.

“One of the most promising applications for THz radiation we are working on is identification of cancers and their margins, which has been demonstrated in melanoma.”

Dr Lee is now working closely with an industry partner M-Squared lasers on the development of THz lasers for a number of potentially revolutionary applications in medicine.

USA - Australia Joint Commission Meeting on Enabling Technologies

“Australia is one of the leading science and technology research nations in the world and we enjoy a strong partnership,” said Dr. Thomas F. Christian, Director for the US Air Force Office of Scientific Research (AFOSR) speaking at the at the Enabling Technologies Technical Exchange, part of the US-Australia Joint Commission Meeting (JCM) on Science and Technology.

The JCM event was jointly organised between ANFF and the Air Force Office of Scientific Research (AFOSR) to explore and build basic research collaborations between the United States and Australia.

The meeting brought together over 70 researchers from both nations at the Basic Research Innovation and Collaboration Centre in Arlington, VA. Some delegates were looking to extend their existing collaborations set up since the inaugural JCM Australia in 2011 while others were looking to establish new partnerships in the areas of Materials Science, Physics and Human Performance/Biomedical Sciences.

“This is the third meeting of its type, bringing together more researchers than before from the U.S. and Australia to have the opportunity to present on their ground breaking research and to pursue potential research collaboration in areas of fundamental science,” said The Honourable Kim Beazley, Ambassador to United States of America.

“This is a testament to the two countries’ scientific capabilities that such a large group could come together for the meeting.” [More]
Queensland: ANFF client Vaxxas has raised $25 million in series B venture capital to accelerate the commercialisation of its Nanopatch needle-free vaccine delivery platform. The Nanopatch was developed by the University of Queensland’s Prof Mark Kendall at ANFF-Q. Vaxxas continues to be supported by several Nodes of ANFF. (More)

NSW: Dr Alessandro Rossi from UNSW Australia has been awarded the 2015 NMI prize for excellence in measurement research for developing a single electron pump device to serve as a metrological standard for electric current. (More)

Victoria: The Hon Christopher Pyne MP launched the Time of Flight Secondary Ion Mass Spectrometry (ToF-SIMS) laboratory at La Trobe University during July. (More)