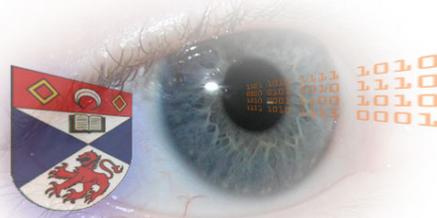


# MILLIMETRE WAVES: VISION FOR THE FUTURE

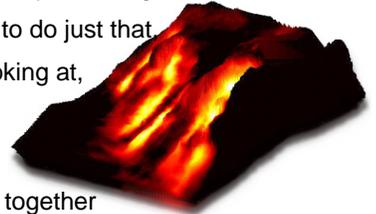


AN OUTREACH PROGRAMME FROM THE UNIVERSITY OF ST ANDREWS

[WWW.VISION4THEFUTURE.ORG](http://WWW.VISION4THEFUTURE.ORG)

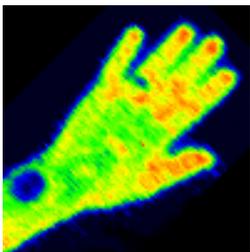


What if you could see through terrorists' clothes to detect hidden weapons? Or look to see how a volcano is changing underneath all the cloud and smoke? Or land a plane safely on a fog-covered runway? Recent advances in **millimetre wave imaging technology** allow you to do just that, providing not just a picture but also the size and shape of the object you are looking at, regardless of the viewing conditions. Under an EPSRC Partnership for Public Engagement Grant, the Millimetre Wave Group at the University of St Andrews has teamed up with award-winning exhibit development company, FifeX, to put together an iconic touring exhibition designed to showcase the alternative view of the world provided by mm-wave remote sensing and illustrate the science behind the technology. The show will be touring major science festivals and exhibitions across the UK for over a year as well as going into schools in the form of a flexible interactive workshop tailored for both primary and secondary pupils.

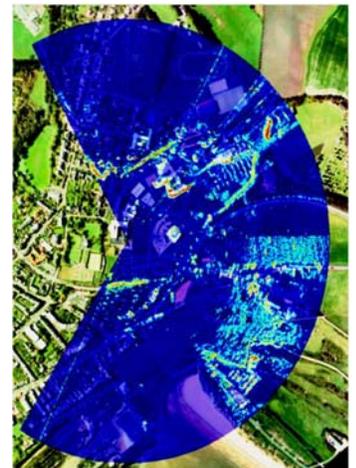


## STATE OF THE ART IMAGING TECHNOLOGY ROADSHOW

Millimetre waves have many diverse applications and the science behind the technology is used widely from everyday experience through to cutting edge research topics: wireless communication, collision avoidance radar in cars, security imaging, monitoring active volcanoes, aircraft safety, probing the structure of proteins, looking inside clouds and even taking pictures of the entire universe!



The aim of the project is to provide an interactive experience that will teach the basic science principles of remote sensing as well as giving people a chance to see what the world looks like with mm-waves using the very latest research imagery and video. The centrepiece of the show is SAFIRE (St Andrews Fast Imaging Radar Equipment): a high resolution mm-wave radar designed to give an instant picture of the mm-wave world: watch yourself walk around the room on a radar display! Demonstration experiments will show how some materials are 'invisible' to mm-waves, how radar guns measure speed, why hot metal appears cold to mm-waves and compare how you look when viewed with mm-wave, infrared and visible cameras.



The whole experience is designed to educate and enthuse as well as stimulating debate on important social issues: How much of your privacy are you willing to sacrifice for security? How can science be used to help

manage natural disasters? What is the cost of these systems? The project will be gathering public opinion on these topics and providing a forum for the public to air their views, both in person and on the website.

## THE GROUP

The Millimetre Wave Group at St Andrews has seen enormous success in their field with over 20 years experience of producing novel mm-wave instrumentation and components for a wide variety of applications. The group have worked on topics including next generation scientific instruments for measuring DNA and protein structure, mm-wave imagers that can take pictures of the heat from the human body through bandages and clothing, and radars which measure the changing shape and temperature of volcanic lava domes from a safe distance. With over £4m of current research funding and a diverse range of project applications the group is ideally placed to lead an educational outreach programme of this type.

## THE DESIGNERS

FifeX Ltd is a multi-award winning exhibit development company, specialising in the development of interactive science exhibits, exhibitions and school laboratory products. A spin out from the University of St Andrews, FifeX has produced a number of award-winning exhibitions that have been toured in the UK and abroad (including the highly successful St Andrews PPE project "Tripping the Light Fantastic") both in schools and at science events. They will be supplying the interactive elements of the exhibition, producing hardware and software interactives, graphics, games and educational material.

## VENUES

The plan is for the roadshow to visit national and international science festivals across the UK: Edinburgh, Orkney, Cheltenham, Galway and Cambridge being a few examples. We are also keen to link with locations appropriate to the use of this technology such as showing aviation applications at the National Museum of Flight near Edinburgh. There will be public lectures, debates and a programme of school visits in a workshop form, initially concentrated in east central Scotland. This list is preliminary and venues for the exhibition and workshops will be posted on the project website as they are confirmed.

## MORE INFORMATION

The project website can be found at [www.vision4thefuture.org](http://www.vision4thefuture.org) with more information on the world of mm-wave imaging, background to the project, a list of confirmed venues for the exhibition and a forum for discussing both user experience of the show and topical issues surrounding the use of mm-wave technology.

For further details of the exhibition and enquiries about booking, please contact the team at

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