

Government backs 3D X-ray technology to capture images of diseased bones in 40 seconds

- New advanced imaging centre will generate precise 3D images of the internal structure of objects from aircraft wings to bones
- £81 million government investment will help businesses to speed up development of high-value products and help avoid costly manufacturing errors
- laser centre furthers the pioneering work of 2018 Physics Nobel Prize winner Donna Strickland and comes as UN marks [International Day of Women and Girls in Science](#)

A new advanced imaging centre will receive £81 million government support, housing super-bright lasers to produce state-of-the-art 3D X-rays in just 40 seconds.

This will help speed up the development of new medical treatments, bring down the cost of manufacturing and identify design improvements.

This innovative technology will be available to UK businesses at the new [Extreme Photonics Applications Centre \(EPAC\)](#) in Oxfordshire. This could benefit pharmaceuticals to airplane wings, batteries for electric vehicles or even artificial organs – boosting the UK's manufacturing sector, including across health and medicine.

These new technologies will be able to speed up the development of new treatments. For example, high resolution 3D imaging of a diseased bone with existing technology can take hours or days: the new systems will produce detailed 3D X-rays in just 40 seconds.

Opening in 2024 at the [Harwell Science and Innovation Campus](#) in Oxfordshire, the new centre will bring together industrial, scientific and defence industries so that they can exploit its world-leading capabilities.

These plans come as the UN today marks International Women and Girls in Science Day which aims to encourage women and girls to pursue a career and subjects relating to science and technology.

The new national research centre will build on the work undertaken by 2018 Physics Nobel Prize Winner, and third woman in history to receive this accolade, Donna Strickland – alongside Arthur Ashkin and Gerard Mourou. Her work to develop high-intensity ultrashort pulses of light beams transformed whole sectors including medicine technology and is now a common technique in laser surgery, among other disciplines.

Science Minister Chris Skidmore said:

Today's launch of the £81 million advanced imaging centre will enhance the UK's leading role in laser technology, including revolutionising medical imaging.

I'm especially delighted to be launching the centre with Physics Nobel Prize winner Donna Strickland – only the third woman in history to achieve this award – on International Day of Women and Girls in Science.

Physics Nobel Prize Winner Donna Strickland said:

Science education helps develop skills in problem solving and critical thinking necessary to address some of the world's biggest challenges. When we encourage girls and women to engage with science, they bring more diversity to science and fresh perspectives that can only help in finding innovative solutions.

[UK Research and Innovation \(UKRI\)](#) Chief Executive Professor Sir Mark Walport said:

From informing the design of next generation aerodynamic aircraft components to examining 3D images of human bones, the new Extreme Photonic Applications Centre has applications across many sectors of the economy.

This technology will create advances in the science and understanding of materials imaging. UKRI will work with a range of industry partners to realise its potential.

Funding is provided through the government's £830 million Strategic Priorities Fund, with additional investment from the Ministry of Defence, and forms part of the commitment to significantly boost research and development funding across every part of the UK.

The Strategic Priorities Fund supports high-quality discipline research and development priorities, with investment also going towards autonomous systems and national collections.

Notes to editors

EPAC will rely on laser technology developed by the [Science and Technology Facilities Council's \(STFC\)](#) Central Laser Facility at the Rutherford Appleton Laboratory, part of the Harwell Research and Innovation Campus.

Funding is provided from UK Research and Innovation's (UKRI) Strategic Priorities Fund (£71.5 million) with further investment of £10 million from the Ministry of Defence.

About the Strategic Priorities Fund

The £830 million [Strategic Priorities Fund \(SPF\)](#) supports high quality multidisciplinary research and development priorities and is delivered through UK Research and Innovation.