MANCHESTER 1824
The University of Manchester

IDEAS WITH IMPACT

Finalists competing for £100k

Thanasis Stergiou - HalioGen Power

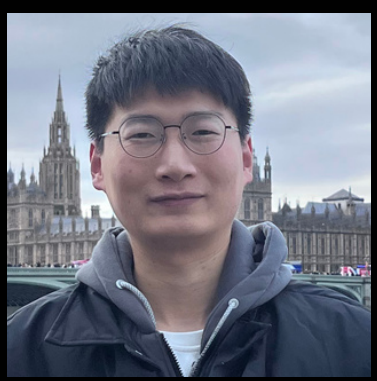
This University of Manchester project, led by Professor Robert Dryfe, has developed a next-generation flow battery based on a novel no-membrane architecture. Using abundant, recyclable materials like zinc and bromine, it avoids toxic or flammable components and can be fully sourced from the nearby countries —reducing reliance on volatile lithium and cobalt supply chains.

Dan Healy - LanthaGen Bio

Lanthagen Bio are developing engineered bacteria with special proteins displayed on their surface to selectively bind rare earth metals. These proteins act like magnets, grabbing only the targeted metals from complex mixtures, such as mining waste or electronics recycling streams. This approach is specific, environmentally friendly, and potentially cost-effective at scale compared to chemical separation methods. It offers a promising way to recover lanthanides for use in clean energy, electronics, and medical technologies with less environmental impact.

Kay Marshall - Molla Pharm

Endometriosis, a disease affecting 190 million women world-wide, happens when cells that line the womb escape from it and spread through the body. It causes many problems such as chronic debilitating pain, which can stop women living normal lives and stop them becoming pregnant. Currently there is no cure. Our idea at Molla Pharm is to deliver drugs directly to the unwanted cells, preventing them from growing and returning after routine surgery for endometriosis. Our novel device is being designed to offer women a pain-free future, and give them back the choice if they want a baby.



Zhiwei Liu - MisInfoDetector

The vast and increasing range of social media channels, news websites and online forums have made it easier than ever to access and share information online. But how do we know which information we can trust in a digital world flooded with false or misleading information? We plan to develop a simple app that uses the latest artificial intelligence technology to check the reliability of information of interest in real time. Our goal is to help protect online users from potential dangers of acting upon misleading information, such as financial losses from scams or health risks from incorrect medical advice.

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Niaz Rayan - SporeSense

SporeSense is an innovative technology that helps farmers spot invisible disease threats before they can damage crops. Our easy-to-use device acts like an "early warning system" - detecting harmful disease spores in the air within minutes, rather than the days needed for lab tests. By catching problems early, farmers can protect their fields with precision, reducing unnecessary pesticide use while increasing yield. This solution combines smart sensors with AI for a simple operation. Already proven in real-world field trials, SporeSense is bringing science from the lab directly to the field, helping growers make better decisions for more sustainable, profitable farming.

Anura Fernando - WearableSens

A machine-washable smart sensor technology that integrates graphene-based textile sensors into maternal inner clothing, continuously monitoring foetal and maternal health. Designed for comfort, safety, and everyday use, these sensors track key indicators like foetal heart-rate and movement seamlessly and non-invasively, eliminating the need for unscheduled hospital visits. Combining advanced materials science with an inclusive, user-focused design, our innovation makes high-quality prenatal care more accessible, helping to reduce preventable complications and support healthier pregnancies for all.

Reem Swidah - SynBioFuel

Modern human life heavily depends on fossil fuels to power factories and vehicles. However, burning fossil fuels releases greenhouse gases that contribute to climate change. Fossil fuels are unsustainable and will run out. That's where our project comes in. Biofuels offer a promising alternative for protecting our planet. We are developing a technology that enables bakery yeast—used to bake bread—to act as micro-factories for producing a renewable biofuel compatible with existing car engines. Our method is simple, cost-effective, scalable, and eco-friendly, with potential to cut production costs by up to 50%, meet real-world demand, and achieve Net Zero.

Alexander Stokes - Imprinted Diagnostics

Each year, 350,000 UK patients are admitted with suspected heart attacks, yet only 20% are confirmed due to slow, centralised troponin testing. Delays increase mortality and cost the NHS £162 million annually. Imprinted Diagnostics (ID) is developing a portable, rapid diagnostic platform delivering lab-quality results from a drop of blood—without refrigeration. The reusable device supports multiple diagnostics and enables testing at the point of need. Alongside, ID offers a sensor development service. We are seeking a £100k award to advance clinical readiness, with a five-year goal of regulatory approval, £10m revenue, and global expansion—targeting exit via trade sale.

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Scott Dean - Graphene Trace

Sensore by Graphene Trace: continuous & automated pressure ulcer prevention, with real-time pressure mapping and 'smart alert' AI.
Sensore was born from a simple but urgent need: to make pressure ulcer prevention easier, smarter and more accessible for everyone. Pressure ulcers are preventable, yet they remain a serious and costly issue; with 700,000 people developing pressure ulcers each year in the UK, and treatment costing the NHS £2.6 billion per year! Sensore will have a transformational impact on patient care quality and empower the UK's 1.2 million wheelchair users to monitor, predict & prevent pressure ulcers before they form.

Farah Frikha - Vesta Capsules

Vesta Capsules creates portable, eco-friendly sleeping pods for people needing a safe, comfortable place to rest in busy spaces like festivals, airports, or city centres. Each capsule is private, weatherproof, and equipped with USB charging, ventilation, and lighting, offering a better alternative to tents or expensive hotels. Made from recycled materials, the capsules are modular and easy to deploy. Vesta Capsules helps people recharge anywhere while reducing environmental impact, aiming to make rest accessible, safe, and sustainable for everyone, while also creating social impact by providing dignified shelter for those in need.

Abdullah Albiladi- FoulguardAI

FoulGuardAI is an early warning system that helps water treatment plants prevent blockages before they happen. These blockages, caused by invisible build-up inside systems, make clean water production more expensive and wasteful. FoulGuardAI uses smart monitoring to alert operators at the right time, so they can act early, reduce chemical use, save energy, and keep water flowing efficiently. Inspired by real challenges in the water industry, FoulGuardAI aims to make clean water more affordable and sustainable for billions of people worldwide — all while lowering environmental impact and supporting global water security.

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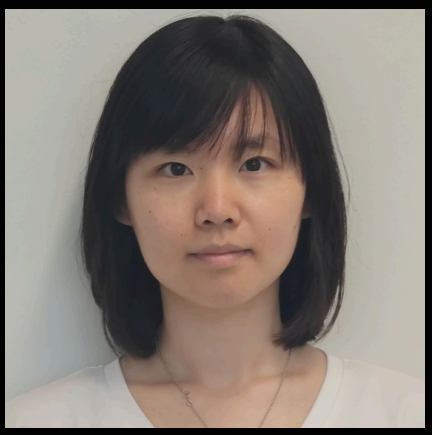
Ziwei Wang - V-Nerva



We're building next-generation AI chips that work more like the human brain. Using a special material called vanadium pentoxide, our technology allows chips to "learn" and "decide" in real time, just like real brain cells. Unlike today's rigid AI hardware, our chips can smoothly adjust their settings for different tasks and various purposes. They can switch from learning to decision-making mode on demand, combining dual functionality in one single compact device. This breakthrough could power future wearable tech, smart glasses, and autonomous systems, making them faster, smaller, and more efficient. It's brain-inspired computing, ready for the real world.

Parsa Pirhady- Simplex Molecular Ltd.

Simplex Molecular is creating the first truly at-home DNA test for sexually transmitted infections (STIs) that gives results immediately, without needing to send samples to a lab. Unlike existing options, it works entirely without electricity or specialised equipment, making it ideal for remote or low-resource settings where access to clinics is limited. Beyond sexual health, the same platform can be used to detect harmful pathogens in livestock and crops, offering a powerful tool for improving global health, agriculture and food security. Our mission is to enable the detection of pathogens anywhere, anytime, by anyone!

Alexander Brannan - Smart Materials

Smart Materials is a team of entrepreneurial chemists at the University of Manchester. We help security and consumer brand companies to secure their revenues and protect against counterfeit products by providing unique colour-changing smart materials that are instantly verifiable and impossible to replicate, unlike conventional fluorescent security inks. We hold know-how knowledge of the technology that enables unprecedented UV-light photo-response with a fully reversible luminescence colour change within seconds. We developed the technology to TRL level 5 with our UK industry partner, Security Fibres Ltd., to authenticate banknotes, fiscal stamps, government documents, or pharmaceuticals.

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Guest Speaker

Dr Anil Day - Bright Biotech Ltd

Anil completed an MA in Biochemistry (Oxford) and a PhD in chloroplast molecular Biology at the John Innes Centre (UEA). His research focus on the chloroplast genetic system continued as an EMBO Long Term Postdoctoral Fellow (Geneva), a Research Lecturer (Oxford) to his current position as a Reader in Manchester.

Together with Dr Junwei Ji, a University of Manchester PhD graduate, he co-founded Plant Organelle Technologies, a spin out company developing novel gene editing technologies for breeding improved crops to address climate change and food security. We are very grateful for the Ideas with Impact Award, which provided us with the vital research funds needed to progress the science to a stage suitable for commercialisation.