

Exhibition Guide



1. Map of Exhibition Hall and SUPA video

2. Chromacity is an innovative Company developing, manufacturing and selling advanced laser products for a number of different application areas. These include: multi-photon imaging, stand off detection & vibrational spectroscopy, quantum entanglement and non-linear optics. Chromacity now has a number of



Chromacity

different products. These include high power femtosecond fixed wavelength sources in the UV (348nm), visible (520nm) and near IR (1040nm) as well as two tunable, picosecond OPO systems that cover the near and mid-IR. Please visit our stand for more information.

3. Converge is Scotland's leading company creation programme for staff, students and recent graduates of all Scottish Universities and Research Institutes.

CONVERGE Converge helps the most innovative and creative thinkers from academia to realise their entrepreneurial ambitions by offering generous cash prizes, mentoring and a programme of business support that turns fledgling businesses into investor-ready companies.

4. The ETP is an alliance of 13 Scottish HEIs providing world-class capability and resources in energy RD&D. Acting as a broker between academia, external organisations and industry, to translate excellent research into economic impact.



5. Fraunhofer CAP offers industry a flexible and practical R&D resource which responds to companies' needs in the development of photonic technologies. They will be showcasing its services on how it can help your company produce products and processes for the future.



Fraunhofer

UK

6. Organic semiconductors are light-emitting materials often found in consumer displays like smartphone screens and televisions. However, their light emission is dramatically affected by nitroaromatic molecules like TNT. We exploit this phenomenon to develop sensors for humanitarian demining, IED detection, and pesticide contamination in water. Ross Gillanders



7. Atomic Architects: Simply take a roll of sticky tape... how a surprising technique is creating exotic new materials at the nanoscale. Brian Gerardot, Ian Galbraith, Cristian Bonato, and Fabio Bioncalana and their 'Atomic Architects' team from IPaQS took part in the prestigious Royal Society Summer Science Exhibition in 2018, which celebrates the cutting edge of UK science. Seven fast-paced but enjoyable days were spent at the Royal Society in London chatting to visitors of all ages about the excitement of atomically thin crystals for discovering new science and making new technologies.



8. *Interface connects organisations to the right academic expertise for increased R&D activity leading to the creation and development of new products, services and processes.*



Their free and impartial service has helped hundreds of organisations to become more competitive increasing profits, maximising export potential and helping them become more sustainable.

For more information visit www.interface-online.org.uk.



9. The Institute of Physics in Scotland is a scientific membership society devoted to promoting physics and bringing physicists together for the benefit of all.

10. M Squared is a multi-award-winning photonics and quantum technology company, which designs and engineers laser systems that underpin fundamental scientific research at leading institutions in more than 30 countries. The company also develops ground-breaking quantum, biophotonics and chemical sensing applications. Successful cross-sector partnerships and collaborations are also leading to breakthroughs in areas as diverse as dementia research and whisky maturation.



M Squared has already established itself as one of the UK's most innovative, disruptive technology businesses. Recognised by the Deloitte Technology Fast 50 and Sunday Times Fast Track 100 and Export Track 100 and awarded the prestigious Queen's Award for Enterprise in Innovation in 2016 and International Trade in 2017. Founded in Scotland, M Squared employs circa 100 people and has offices throughout the UK, Europe and the USA.

11. National Physical Laboratory is the National Measurement Institute for the UK. We provide the measurement capability that underpins the UK's prosperity and quality of life.



12. Novosound push the limits of ultrasound by exploiting thin film technologies in current and untapped markets. The patented sensor technology addresses the limitations of traditional



ultrasound manufacture with a printed sensor that can be mass-manufactured for NDT and Imaging applications.

13. Photon Force designs and supplies time-resolved single-photon sensitive cameras for a range of applications, such as fluorescence lifetime imaging, quantum imaging, and Lidar. Our cameras are fast, compact and simple to use – allowing our customers to accelerate their progress in today's competitive research environment.



14. QuantIC is the UK Quantum Technology Hub in Quantum Enhanced Imaging and is part of the UK National Quantum Technologies Programme. Through our £4M Partnership Resource Fund, we're collaborating with industry to pioneer a



family of multidimensional cameras operating across a range of wavelengths, time- scales, length- scales to create a new industrial landscape for imaging systems and their applications in the UK.

15. **Razorbill Instruments: Cryogenic Instrumentation**

Razorbill Instruments, a new Scottish start-up from a SUPA university, is a manufacturer of high quality cryogenic research tools. We will be exhibiting our new product, a highly compact strain cell for applying controlled strains to 1.5 mm and smaller samples at cryogenic temperature. This product will be relevant to physicists investigating the effect of crystal structure and lattice distortions on the electronic properties of solids - for example superconductors, graphene and other novel materials.



16.



17. Millimetre wave radar is ideally suited to detecting small, slowly moving objects due to the high Doppler sensitivity available at shorter wavelengths. Increasingly, drones pose a security risk so we have been researching the application of millimetre wave radar to their detection, tracking and classification. This work has been supported by STFC, the University of St Andrews and industrial partners. Duncan Robertson



18. RSE Enterprise Fellowships offer business development support and premier training to the Higher Education sector; enabling researchers to develop into successful, world-class entrepreneurs. Each Fellowship is worth up to £90K in funding and training support



RSE Enterprise Fellows receive:

- One year's salary
- Training in business fundamentals
- Mentorship
- Up to £10K business support funding
- And more!

An Enterprise Fellowship is a once-in-a-lifetime opportunity with the potential to truly be life-changing.

19. ScotCHEM is a strategic collaboration of Scotland's university chemistry departments. We pool and enhance resources for chemistry research and research training in Scotland. We bring together seven universities and other major players in the chemical sciences. ScotCHEM generates enhanced critical mass, spurs collaboration, and enables wider access to major facilities.

www.scotchem.ac.uk



20. Graham Smith, Ultra wideband millimetre wave feed antennas

MM-wave feed antennas are used in compact radar and radiometric systems, including those used for security imaging, autonomous guidance, communications (including 5G), remote sensing, astronomy, plasma diagnostics, magnetic resonance, and materials measurements. Many of these applications require high performance antennas that often need to work over extremely wide bandwidths. We present state-of-the-art designs adapted for different applications, with work supported by St Andrews, EPSRC, EPSRC IAA and an industrial partner.



University of
St Andrews



21. STEM Ambassadors are volunteers who offer their time free of charge to schools and community groups to inspire young people in the STEM subjects. Science Connects runs the West of Scotland STEM Ambassador Hub and provides support and training to over 3,000 STEM Ambassadors. If you want to communicate your research to a younger audience then become a STEM Ambassador!

22. Technology Scotland is the representative body for the enabling technology community in Scotland, bringing together industry, academia and government in a technology cluster that develop products and services utilising electronics, photonics, nanotechnology, advanced materials and beyond.



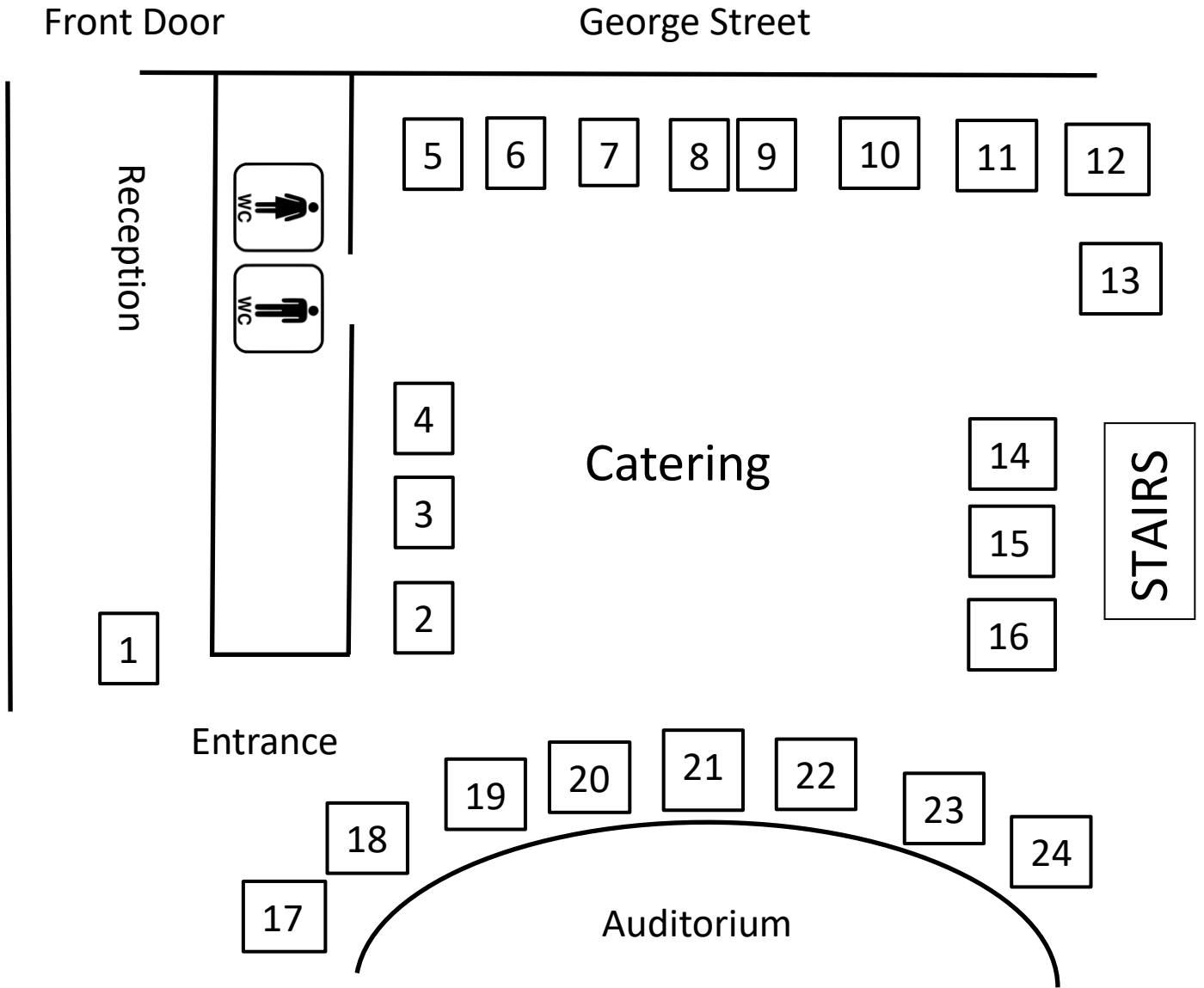
23. The Scottish Universities Life Science Alliance (SULSA) is a strategic alliance between eleven Scottish Universities that aims to advance Scotland's research and innovation in the life sciences. SULSA's vision is to support and increase the level of high-quality life sciences research conducted in Scotland, so that Scotland is recognised globally as a destination for leading life sciences research. SULSA has an array of events, funding calls and researcher development initiatives that can be discovered at www.sulsa.ac.uk.



24. SINAPSE Medical Imaging Network

SINAPSE is the medical imaging research pool for Scotland, with areas of expertise including MRI, PET, SPECT, CT, EEG, ultrasound, and retinal imaging. SINAPSE membership is free and open to all researchers in Scotland involved with imaging.

FLOORPLAN



Poster Competition

Each year our doctoral students are invited to present a poster on their research. Please take a look at the posters and chat to the students, on the UPPER LEVEL.

NAME	UNI	POSTER TITLE
Karen Westland	Dundee	Custom Fabricated Compound Parabolic Concentrators (CPCs)
Edward Muir	Edinburgh	Fracking Bacteria: The mechanical origin of submerged colony morphology
Carmen Morcillo Pérez	Edinburgh	Complex formulations drying on complex substrates
Emily Gould	Edinburgh	Autonomous analysis of confocal images: using machine learning to recognize bijels
Sijia Gao	Glasgow	Skyrmion structure in vector beams
Fergus Hayes	Glasgow	Inferring Gamma-Ray Burst Beam Structures with Gravitational Waves
Une Butaite	Glasgow	Indirect optical trapping using light driven micro-rotors for reconfigurable hydrodynamic manipulation
Zhe Xian, Koong	Heriot-Watt	Fundamental Limits to Coherent Photon Generation with Solid-State Atom-Like Transitions
Gerard Valentí-Rojas	Heriot-Watt	When matter falls apart. Towards a quantum simulation of emergent gauge theories.
Berke Vow Ricketti	Heriot-Watt	Ultrafast Sunlight Emulator for Quantum Biology
Matthew Duff	Strathclyde	Multi-stage scheme for non-linear pair-production utilising ultra-intense laser-solid interactions
Lucas Herdly	Strathclyde	3D super-resolution microscopy without axial scanning: comparison of methods
Mollie McFarlane	Strathclyde	Applications of High Brightness 280nm LEDs in Biomedical Optical Imaging
Shannan Foylan	Strathclyde	MesoTIRF: Developing a Total Internal Reflection Fluorescence illuminator for mesoscopic imaging of antimicrobial compounds
Milan Adelt	Strathclyde	Investigating morphological changes of silica shells deposited on gold nanorods
Katie McDonnell	Strathclyde	Demonstration of a mesoscopic quantum gate
Emma Le Francois	Strathclyde	Photometric Stereo Imaging with a mobile phone camera
Lewis Hill	STRATH	Effects of self- and cross-phase modulation on the spontaneous symmetry breaking of light in ring resonators.
Jacqueline Sinclair	UWS	The Pygmy Dipole Resonance in 58Ni and 60Ni