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## Sensing the Universe in colour; Kinetic Inductance Detectors for optical and near-IR astronomy

I will describe the ongoing work in the development of energy-resolving Microwave Kinetic Inductance Detectors (MKIDs) for optical and infra-red astronomy. These super-conducting devices represent an important step towards the development of the 'ultimate detector'; one that can measure the position, energy and arrival time of a photon. Current arrays have 10,000 MKIDs, where each pixel is capable of determining the arrival time of a photon to 1 microsecond and the energy of the photon to around 5%. I will describe the operating principles of the devices, their current status and the future promise of this disruptive technology. I will outline the areas of astronomical instrumentation where we have identified their potentially transformational impact.

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