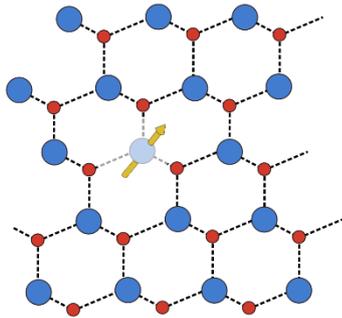




PhD position:

Single spins in silicon carbide for quantum technology

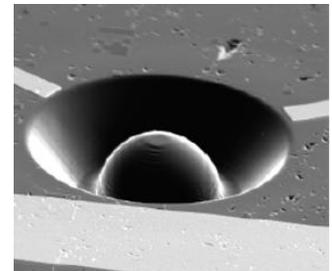
Why? A single spin is the smallest possible magnetic field sensor, providing the ultimate limit in spatial resolution. Devices comprising one single spin or a few spins provide a revolutionary tool to study magnetic fields at the nanoscale. For example, they could be



used to detect nanoscale magnetic fields in nano-electronic devices, biological molecules and complex materials. Single spins are also excellent systems to store and process information at the quantum level, providing communication and computing capabilities beyond what is possible in the classical world.

What? The goal of this project is to study single optically-active defects in Silicon Carbide and develop techniques to individually initialize, control and measure their associated spins. In addition to excellent spin properties, silicon carbide offers the opportunities of a technologically mature material, routinely grown in high-quality wafers, doped and nano-fabricated, paving the way to real-world applications of quantum devices.

Who? We would like to recruit motivated students to join a newly-established team at Heriot-Watt University. Prospective students should have a first-class degree in a relevant discipline (Physics, Electrical Engineering, Materials Science) and a strong interest in experimental research. The studentship comes with a standard ESPRC stipend of £14,296 per annum for a period of three years. Due to funding restrictions, the studentship is available to EU applicants only.



The multidisciplinary nature of this project will give the successful applicant the possibility to gain experience in different fields, such as semiconductor physics, quantum optics, nano-photonics, magnetic resonance, nanofabrication.

Where? The **Institute of Photonics and Quantum Sciences at Heriot Watt** is a vibrant environment for science, with more than 160 researchers active on different aspects within the field of Photonics. Heriot-Watt is based in the outskirts of Edinburgh, one of Europe's most exciting and lively cities.

Please contact **dr Cristian Bonato** (c.bonato@hw.ac.uk) for further information.

Application deadline: 30th June 2016.