



PhD Position: Instrumentation and Cavities for High Field High Power Pulsed EPR and DNP

This project will involve designing, building and testing a variety of novel high frequency EPR and DNP cavities, to be used in a state-of-the-art EPR system and demonstrating their impact over a wide range of applications. It would suit a student with a strong practical experimental skills who would gain a knowledge of electromamgnetic techniques from dc through microwaves, millimetre-waves through to optics. Both cw and Pulsed EPR have seen significant gains in sensitivity in recent years at high frequencies due to significant advances in instrumentation and key components. In many cases this has opened up whole new applications in both materials and bioscience. However, the current sensitivity for very broad line systems (often associated with transition metal ions, which appear in many important catalytic and enzymatic systems) or lossy systems (for example any aqueous sample) currently falls way below the levels that might be expected theoretically, for reasons that are purely technical in nature. It would be a significant breakthrough if sensitivity could be improved in these areas and there are many promising approaches. The student would join a strong group, which currently has 6 PDRAs and 4 PhD students and it is anticipated that this project will involve significant collaborations with Dundee University and Warwick University.

For further information contact Graham Smith (gms@st-and.ac.uk) or imr.cdt@warwick.ac.uk

The Centre for Doctoral Training in Integrated Magnetic Resonance (**IMR**) is a collaboration between researchers at the Universities of Warwick, St Andrews, Southampton, Aberdeen and Nottingham.