

High Frequency Microwave Antenna Structures for Measurement of Blood Glucose

Fully Funded PhD Scholarship

This research project addresses one of the fundamental areas of research for an extremely challenging medical device – non-invasive blood glucose monitor. The ultimate deliverable is a commercially viable product of which the antennae will be an integral part. The research activities will involve:

- Literature review of high directivity, narrow band antennae structures
- Review of regulatory requirements of medical devices and classification
- Identification of patents in this field and potential IP landscape opportunities/work-around
- Identification of possible practicable structures & methodologies for matching the structures to blood
- Identification of substrate materials for addressing the need for disposable earclips/antennae
- Identification of cable solution to connect ear piece to hand-held monitor
- Design, simulation & optimisation of structures on various substrates
- Fabrication, testing, optimisation
- Industrialisation of ear clip design

This work will input to the development phase of the medical device comprising:

- Initial laboratory based testing and characterisation of the proof of concept
- Working with the team to develop the hardware specifications
- Helping conduct *In vitro* validation of system with gold standard (HBA1C)
- Feasibility study documentation
- Instigation of ethical committee approval
- Additional Patent filing & Design Rights filing
- Further market scoping and competitor intelligence

Initial laboratory testing will be conducted during the development phase. This fundamental testing and characterisation will be instrumental in identifying the operating envelope of the system and will identify the provisional specification of the prototype. As the company is working very closely with The Royal Liverpool Hospital, the ideal candidate will have to be comfortable working with the hospital team and on occasion in the environment of the hospital.

The studentship includes a tax free maintenance grant of £14k per annum, with full-time fees paid and additional allowances. A requirement of the studentship is a minimum 30-day non-

remunerated work placement per annum. More information on the studentship and application process can be found at www.higherskillswales.co.uk/kess

The ideal candidate will be qualified to degree level (1st or 2i) in any of the following disciplines: Electronic engineering, Microwave engineering, Microwave/communication systems engineering with an interest in biological sciences and medicine or Medical physics which includes a microwave engineering modules.

For the right individual, there is potentially an excellent opportunity to join a dynamic medical device company with generous remuneration and equity.

Initial informal enquires should be directed to Professor Chris Hancock
c.hancock@bangor.ac.uk

How to apply

The first step in the application process will be to complete and submit an eligibility form which can be downloaded [here](#). This form must be completed, signed and submitted to Katie Minton, Senior Clerical Officer, KESS, Room E:109, The management Centre, College Road, Bangor, LL57 2DG. You will receive a response regarding your eligibility within 5 working days of receipt of your form.

The closing date for formal applications will be **15th July 2011** and short-listed applicants will be required to attend an interview, with an anticipated start date of no later than October 2011.

Eligibility

To be eligible to participate in the KESS programme, prospective students must be resident in the Convergence Area (West Wales and the Valleys) on application, and be able to work in the Convergence Area upon completion of the scholarship. The eligibility form is the first step in the application process and any applications which do not meet the above criteria will not be processed further.

Knowledge Economy Skills Scholarships (KESS) is a pan-Wales higher level skills initiative led by Bangor University on behalf of the HE sector in Wales. It is part funded by the Welsh Assembly Government's European Social Fund (ESF) convergence programme for West Wales and the Valleys.

