

## **Call for PhD Proposals for the Physical Sciences for Health Sci-Phy-4-Health CDT Programme**

This call for proposals is for the Sci-Phy PhD projects that are to be undertaken during the next 3 years by our current first year students, starting Autumn 2017.

### **Background**

The Sci-Phy programme combines the physical sciences, computer science, and engineering with biomedicine and healthcare to break down the boundaries between these disciplines. Students on our interdisciplinary training programme are expected to develop underpinning new physical science research to address one of the three key UK healthcare challenges:

- Rebuilding the ageing and diseased body
- Understanding cardiovascular disease
- Improving trauma and emergency medicine

Research projects must involve the development of physical and computational sciences as applied to one of these three healthcare challenges. Project areas included in the initial proposal, which build on our skills established in PSIBS and our EPSRC portfolio are as follows:

- Labelling Therapeutic Cells
- Devices that differentiate sterile and non-sterile inflammation
- Metal implants
- Ceramic & Polymeric Biomaterials
- New microscopies for studying cell adhesion and signaling in vascular disease
- Nano-compounds and methods to explore flow in confined spaces in teeth under repair, and in blood circulation
- Supramolecular recognition of key nucleic acid targets
- Novel Size-Selected Metal Nanoprobes
- New frontiers in optical imaging
- Statistics and Data Analysis for Characterisation, Knowledge Mining and Discovery

### **Supervision requirements**

The projects must be co-supervised by a minimum of three supervisors with at least one from each of these subject backgrounds (physical, computational and biomedicine). All three supervisors must be involved in supervision but one supervisor must be designated as the lead supervisor with primary responsibility for ensuring

- a) the research is performed effectively
- b) the student has access to the facilities they need
- c) the research will lead to a PhD within the required time period.

During the course of their PhD project students will have opportunities to undertake placements, which could be with one of our current industrial partners or at a collaborating partner overseas, to experience a wider scientific view and different working environments. Local alternatives will be considered to support students with care or family responsibilities. Potential supervisors should start to consider suitable placement areas/partners as part of the proposal mapping process.

### **PhD Funding**

Sci-Phy-4-Health will fund 60% of each student. Schools and Colleges have agreed in principle to contribute the remaining 40% (£40.7k) on a project-by-project basis. This may be deferred for 12 months and/or spread over the student's period of registration as is appropriate. Co-funding arrangements will need to be confirmed and authorised at school/college level before projects can be presented to students.

Each student will also be allocated a consumables allowance, typically up to £5000 per annum located in an expenses reference code under the control of the lead supervisor.

The Sci-Phy programme has a wealth of industrial support with collaborations with 18 industrial companies, a number of national research institutes and a leading NHS acute Hospital, embedded in the programme, some of which may provide beneficial funding partnerships for our PhD projects.

### **Proposal Submission Details**

The submission deadline for your 1-page proposals will be 1.00pm on Friday 23rd June 2017.

Evaluation criteria includes (but is not restricted to):

- Does the proposal have sufficient scope for high quality research?
- Is the research topic clearly identifiable? Are the goals clear?
- Does the project identify and address one of the 3 key healthcare challenges? Is there fit to one of the topic areas? (Needs to have 50% or more Physical or computational science to fit in with our EPSRC remit and the proposal must show an advance in physical sciences )
- Are the outcomes feasible within the 3 year timescale?
- How will the research benefit the academic and healthcare communities?
- Are there facilities available to host a PhD student i.e. office/lab space?

Proposals will be reviewed by the Sci-Phy Steering Committee members, which includes a Physical Sciences representative from EPSRC to ensure that they meet the criteria stipulated above and provide an acceptable framework for a three year PhD project. Feedback will be provided on all submitted proposals.

### **Getting Involved for the First Time**

If you are new to the CDT and the project proposal/supervision process, you may find it useful to receive guidance regarding the structure and content of the proposal, and to identify co-supervisors from other schools to support your ideas. Please contact a member of our Steering Committee for support as soon as possible if you would like to submit a proposal and are unsure where to start.

The full list of Our Steering Committee members can be found here:

<http://www.birmingham.ac.uk/research/activity/sci-phy/about/people/steering-committee.aspx>

### **What if my proposal is accepted?**

If your proposal is accepted it will be circulated to the students during the summer vacation. The students are expected to take around a month to contact potential supervisors and make an informed decision on their project choice based on these discussions. By the beginning of

November they will each submit a 3-page description of their chosen project and action plan for the first 3 months.

We currently have 13 students on the Sci-Phy programme. Please bear in mind that proposal acceptance will not guarantee a student to undertake the project.

A member of the Steering Committee (with no direct involvement in the project) will be assigned to each student/project as a mentor. This member of the Steering Committee will be responsible for monitoring student progress, attending quarterly meetings with the student and the supervisors to ensure projects are running smoothly and/or identifying any problems or needs (through a personal development plan). They will report back to the Steering Committee in order that they may monitor the effectiveness of the interdisciplinary programme and intervene to provide guidance and support if/when necessary.

### **How to submit a proposal**

Please submit your proposals via email to Hamid Dehghani ([h.dehghani@cs.bham.ac.uk](mailto:h.dehghani@cs.bham.ac.uk)) as doc or docx attachments and including the following details (all within 1 page - template attached for your use):

- The supervisors and their schools (please let us know if we may be of assistance in identifying suitable co-supervisors)
- Project aims
- Broad methodology
- Likely scientific outcomes in the time period
- Training outcomes (techniques, skills etc.)
- How the three disciplinary elements contribute to the project
- Any particularly relevant background references (not an exhaustive list!)

Any proposed project that may have overlap with other existing projects must clearly identify new science and applications.

### **National Productivity Fund: Industry-focused studentships**

The CDT may be receiving additional funding from EPSRC which will be Industry-focused, to be used as Targeted Recruitment (i.e. these will be individually advertised, recruited for a start in Autumn 2017, undergoing 1 Year training with PhD project starting in Autumn 2018). The Steering Committee, may decide to identify suitable PhD proposals from those submitted for this route of entry.