DPhil CASE studentship in Inorganic/Physical Chemistry research area

Project title: Developing an On-Chip Reagentless Cancer screen

Start Date: as soon as possible, or October 2019 at the latest

Supervisor: Professor Jason Davis (research webpage: https://www.jjdgroup.co.uk)

Professor Davis is looking for energised strong applicants interested in a multidisciplinary DPhil that spans molecular films, state of the art electrochemistry, electronics, fluidics and diagnostics. In order to reach high levels of diagnostic assay sensitivity *and* to move to a detection format which is potentially cheap, portable and *multiplexable* (a prerequisite for early cancer diagnosis, as no single marker offers adequate sensitivity/selectivity), label free electrical detection methods offer much. Such methods are natively very sensitive, readily integrated into microelectronic and microfluidic configurations, utilize no moving components, motors, mirrors, resonant units or required imaging. Assays are generated by controllably immobilizing receptive biomolecules (typically antibodies, nucleic acids or peptides) on electrodes and converting the target protein binding event into a measureable electrical signal. One of the most sensitive and powerful means of doing this is by electrochemical impedance (EIS). We have successfully shown that translation of this approach to clinical samples is viable. This project, in collaboration with Osler Diagnostics, seeks to develop new derived *reagentless* detection tools, receptive and responsive molecular films and an on-chip label free electrical detection to facilitate early, pre-symptomatic, cancer diagnosis.

The ideal candidate will hold a degree in physics, physical chemistry, biophysics, or a related area. Biochemistry students with a flair for more physical approaches to problems are also encouraged to apply.

Application deadline: **12.00noon (UK time) on Friday, 25th January 2019**

Interested candidates are invited to contact Professor Davis by email to: jason.davis@chem.ox.ac.uk and send a single PDF consisting of a cover letter (explaining your background and motivation) and CV, and arrange for two academic referees to send letters of support directly to Prof. Davis by the closing date.

Please quote: **JJD/EPSRCCASE/2019** in the subject line of your email.

The studentship will be funded by the UK Engineering and Physical Sciences Research Council (EPSRC) and Osler Diagnostics. It will cover course fees at Home rate plus provide a maintenance grant at a UK Research Council rate (currently set at £14,777 per annum) for 3 years in the first instance, with a possibility of an extension for an additional 6 months.

Candidates must meet the EPSRC funding eligibility criteria.

Information about the programme of study is available at:
https://www.ox.ac.uk/admissions/graduate/courses/dphil-inorganic-chemistry

Please note that submission of a formal DPhil application will be required at a later stage.

Queries related to the application process or funding eligibility should be directed to:
graduate.admissions@chem.ox.ac.uk (please quote **JJD/EPSRCCASE/2019** in the subject line of your email enquiry).