Newcastle University PhD Studentship award

Title
New principles of design and fabrication antimicrobial surfaces

Value of award
100% of International tuition fees paid

Number of awards
1

Start date and duration
September 2019 for 3 years

Application closing date
8th February 2019

Overview
Healthcare-associated infections are one of the most pressing issues in healthcare, which lead to great financial burden on the National Health Service (NHS) and significant patient impact. For example, healthcare-associated infections are estimated to cost the NHS approximately £1 billion a year, and £56 million of this is estimated to be incurred after patients are discharged from hospital. Bacteria that grow in biofilms, a slime that covers biomedical devices surfaces and all surfaces in hospitals, can be hundreds of times more resistant to antibiotics than their planktonic counterparts. This makes biofilm eradication a great challenge for healthcare. Most of the existing antimicrobial strategies are to develop coatings that release chemical agents such as antibiotics and silver ions to kill the bacteria [1-3]. However, these chemical based bactericidal strategies can often contribute to the emergence of antimicrobial resistance (AMR). As the largest global consumer for antibiotics, Chinese government has recognized AMR as national threatening issue according to National action plan to combat antimicrobial resistance in National Health and Family Plan Commission (Aug 2016). The AMR induced annual loss in productivity and associated annual medical costs owing to AMR are estimated at CNY 4.7 billion (£0.52 billion) and CNY 1.9–9.1 billion (£ 0.21–1.0 billion). Thus, there is a pressing need to develop antimicrobial surfaces without involving the use of antibiotics or other antimicrobial agents.

Therefore, this project aims to develop novel antimicrobial surfaces based on nanoscale-microscale surface architecture which can have sustainable antimicrobial performance during the service life. This project well aligns with university strategic area of aging and sustainability as well as the CSC strategic priority of new principles and methodologies for materials design and fabrication.

Please click the here to see the research proposal.

Sponsor
Faculty of Science Agriculture and Engineering and Chinese Scholarship Council (CSC)

Name of supervisor(s)
Jinju (Vicky) Chen (Lead supervisor), School of Engineering,
Eligibility Criteria
You must be a citizen and permanent resident of the People's Republic of China at the time of application. All applicants should have (or expect to obtain) a 2:1 or first-class degree in a Mechanical Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Physics, Materials Science, Computing or other relevant science and engineering disciplines. The applicants should also have a strong interest in pursuing research in this field. Additional research experience relevant to the area of research is also advantageous. Demonstrated publication record is also an advantage but not essential.

How to apply
You must apply through the University’s online postgraduate application system. Apply here. To do this please ‘Create a new account’. All relevant fields marked with a red asterisk must to be completed.

The following information will help us to process your application. You will need to:
• Insert the programme code 8090F in the programme of study section
• Select ‘PhD Mechanical Engineering (full time) - Mechanical and Systems Engineering’ as the programme of study
• Insert the studentship code CSC1814 in the studentship/partnership reference field
• Attach a covering letter and CV. The covering letter must state the title of the studentship, quote reference code CSC1814 and state how your interests and experience relate to the project
• Attach degree transcripts and certificates and, if English is not your first language, a copy of your English language qualifications

Contact
Dr. Jinju (Vicky) Chen (lead supervisor)
Jinju.chen@ncl.ac.uk;
https://www.ncl.ac.uk/engineering/staff/profile/jinjuchen.html#background