|  |
| --- |
| **Research Theme: Proteomics and Protein** |
| **PhD Research Project Title:**  Non-contact mass spectrometry-based proteomics and metabolomics via acoustic levitation |
| **Scholarship category (Please indicate the type of scholarship for this project):**   1. **SBS Research Student Scholarship (for SBS faculty only)** 2. **NTU Central RSS** |
| **Principal Investigator/Supervisor: Xueming Dong** |
| **Co-supervisor/ Collaborator(s) (if any):** |
| **Project Description**  **a) Background:**  Mass spectrometry (MS) is one of the most popular bioanalytical methods for both academia and industry. With the progress in ion physics theory and precision engineering, MS instrument gains increasingly remarkable sensitivity. In many MS-based analysis, the non-specific binding of analyte to container surface during sample preparation becomes the limiting factor for sensitivity, despite decades of endeavor in material science and engineering.  Our approach to address this issue is to employ acoustic levitation for sample preparation. Acoustic levitation floats the liquid droplet in the midair and thus completely obliterate the need to use containers. Consequently, sample preparation via acoustic levitation do not suffers from theoretically no loss from non-specific binding.  **b) Proposed work:**  This project is multidisciplinary and collaborative. The student will be involved in both instrumentational works and proteomics/metabolomics works in collaboration with other research groups. In addition, the student will also need to learn and familiar with operation and maintenance of multiple state-of-art mass spectrometers located in SBS.  **c) Preferred skills:**   1. Mass spectrometry instrumentation 2. Acoustic levitation 3. Physics |
| **Supervisor contact:**  **xueming.dong@ntu.edu.sg** |
| **SBS contact and how to apply:**  Associate Chair-Biological Sciences (Graduate Studies) : [AC-SBS-GS@ntu.edu.sg](mailto:AC-SBS-GS@ntu.edu.sg)  Please apply at the following:  **Application portal:** <https://venus.wis.ntu.edu.sg/GOAL/OnlineApplicationModule/frmOnlineApplication.ASPX> |