**NUS Graduate School for Integrative Sciences and Engineering**
**Research Project Write-up**

| | |
|---|---|
| **Title of Project :** | Molecular imaging contrasts for optical coherence tomography |
| **Name of Supervisor :** | Chen Nanguang |
| **Contact Details:** | Email: biecng@nus.edu.sg<br>Tel: 6516-4401<br>1 Engineering Dr. 2, #E1-05-19 |

**Short Description**

This project focuses on development of novel imaging contrast agents for optical coherence tomography (OCT). OCT is a conventionally a morphological imaging method that depends on backscattering and reflection. It can provide a penetration depth up to 3 mm, which is remarkably advantageous over fluorescence based microscopic methods such as confocal microscopy and two-photon microscopy. However, lack of molecular specificity limits its range of applications. In this project, Various Gold nanostructures and their scattering properties will be investigated by the use of finite difference time domain method. Gold nanostructure of appropriate scattering properties will be fabricated and conjugated to antibodies for targeting specific biomolecules. OCT imaging experiments will be conducted to verify the performance of developed contrast agents.