**Research Theme:** Cell biology

**Research Project Title:** Studying the intra-Golgi trafficking via novel super-resolution microscopy

**Principal Investigator/Supervisor:** Asst Prof Lei Lu

**Co-supervisor/ Collaborator(s) (if any):** NA

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### Project Description

#### a) Background

The Golgi apparatus is a sub-cellular organelle that plays an important role in regulating the membrane flow (trafficking) within a eukaryotic cell. It comprises of many serially stacked membrane sacs called cisternae, which are roughly divided into four sub-Golgi zones including the cis, the medial, the trans-Golgi and the trans-Golgi network. Within the Golgi apparatus, two concurrent flows of membranes and proteins (cargos) exist—from cis to trans or from trans to cis. However, little is known on how the Golgi maintains its unique organization and how cargos move inside the Golgi. One of the greatest challenges in studying the Golgi apparatus is that the details within the Golgi (or the sub-Golgi structures) are beyond the resolution of the conventional light microscopy.

#### b) Proposed work

We have established a novel super-resolution method to conveniently determine the sub-Golgi localization of proteins. Taking advantage of this new approach, we will quantitatively study the cargo movement within the Golgi using cutting edge imaging techniques.

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**Supervisor contact:**

If you have questions regarding this project, please email the Principal Investigator:

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Please apply at the following: [http://admissions.ntu.edu.sg/graduate/R-Programs/R-WhenYouApply/Pages/R-ApplyOnline.aspx](http://admissions.ntu.edu.sg/graduate/R-Programs/R-WhenYouApply/Pages/R-ApplyOnline.aspx)