It is textbook knowledge that chromophore aggregation generally quenches light emission. In this talk, I will give an account on how we observed an opposite phenomenon termed aggregation-induced emission (AIE) and identified the restriction of intramolecular rotation as a main cause for the AIE effect. Based on the mechanistic understanding, we developed a series of new fluorescent and phosphorescent AIE systems with emission colours covering the entire visible spectral region and luminescence quantum yields up to unity. We explored high-tech applications of the AIE luminogens as, for example, fluorescence sensors (for explosive, ion, pH, temperature, viscosity, pressure, etc.), biological probes (for protein, DNA, RNA, sugar, phospholipid, etc.), immunoassay markers, PAGE visualization agents, polarized light emitters, monitors for layer-by-layer assembly, reporters for micelle formation, multistimuli-responsive nanomaterials, and active layers in the fabrication of organic light-emitting diodes.

Date: 17th January 2011 (Monday)
Time: 11am – 12.30pm
Venue: NTU SPMS CBC Building Level 2, Conference Room
Host: Asst. Professor Chen Hongyu