

**Miss Vera Bin-San CHAN**

**Biomaterial dynamics in marine invertebrates during larval metamorphosis in CO<sub>2</sub> –rich seawater**

Some calcifying marine invertebrates, such as molluscs, coral and foraminifera, incorporate dissolved atmospheric carbon dioxide (CO<sub>2</sub>) into their calcium carbonate (CaCO<sub>3</sub>) skeleton for structural support through biomineralization. Understanding the structural features of CaCO<sub>3</sub> biominerals, would therefore, provide a useful prototype in biomaterial design. The shells of many marine invertebrates are built by different layers of calcium carbonate polymorphs, including aragonite, vaterite and calcite. Besides their architectural beauty, the composition of CaCO<sub>3</sub> polymorphs in invertebrates, especially in mollusc, shell appears to vary among taxa, change through developmental stages and may also respond to climate change. The Ph.D. research of Vera Chan studies how the projected CO<sub>2</sub> rich seawater could affect the strength and production of different CaCO<sub>3</sub> polymorphs in different marine invertebrate taxa during their critical period of development, i.e. larval settlement and metamorphosis, by X-ray diffraction techniques.