

# Mahidol University International College

## MUIC MATHEMATICS SEMINAR

**Speaker:** Ho Hon Leung (United Arab Emirates University)

**Title:** *Maximal commutative subalgebras of Grassmann algebra*

### **Abstract**

Grassmann algebra (exterior algebra) is a classical algebraic object that has found numerous applications in linear algebra and differential geometry. Algebraically it is interesting to investigate the structure of commutative subalgebras in a Grassmann algebra. Surprisingly, this question in algebra has a deep connection to some open questions in finite combinatorics.

In this talk, I will give a brief survey on the known results in this topic. I will describe new constructions of maximal commutative subalgebras in Grassmann algebra of odd rank. These constructions serve as counterexamples to a conjecture made recently by Domoskos and Zubor in 2014. I will mention a few conjectures (some of them are purely computational in nature) related to such results. No prerequisite is required in this talk. All audience are welcome.