

# MANY CHEERFUL FACTS

presents

## Mathematics of ADE : The ubiquity of Coxeter-Dynkin diagrams

a talk by Chul-hee Lee

12:10 - 1:00pm on Wednesday, April 4, in room 1015.

Simple Lie algebras are classified by the use of Dynkin diagrams. A Dynkin diagram is a graph representing the information of the root system of a Lie algebra. But similar diagrams appear in different fields also. John McKay discovered that some of these diagrams can also be obtained from the representation theory of finite subgroups of  $SU(2, \mathbb{C})$  which are closely related to Platonic solids. Moreover, the study of singularities of surfaces also gives the same diagrams. I will talk about how to obtain these diagrams in each case (with examples) and the relations between different cases.

*I am the very model of a modern Major General,  
I've information vegetable, animal, and mineral,  
I know the kings of England, and I quote the fights historical  
From Marathon to Waterloo, in order categorical;  
I'm very well acquainted, too, with matters mathematical,  
I understand equations, both the simple and quadratical,  
About binomial theorem I'm teeming with a lot o' news,  
With many cheerful facts about the square of the hypotenuse!*

- Gilbert & Sullivan  $P \circ P$

The website for Many Cheerful Facts is  
<http://www.math.berkeley.edu/~slofstra/mcf>