

THE UNIVERSITY



OF HONG KONG

Institute of Mathematical Research

Department of Mathematics

Geometry Seminar

Cluster Algebras and Poisson Geometry

Professor Michael Gekhtman
University of Notre Dame, USA

Abstract

A notion of a cluster algebra recently introduced by Fomin and Zelevinsky was motivated by a study of dual canonical bases and total positivity in reductive groups. For example, coordinate rings of such varieties as (double) Bruhat cells in flag varieties and Grassmannians possess cluster algebra structure. I will discuss the definition, properties and examples of cluster algebras and then report on a joint work with M. Shapiro and A. Vainshtein, in which we introduced a Poisson variety compatible with a given cluster algebra structure and gave a method to compute the the number of connected components in the union of generic symplectic leaves. As an application, the number of connected components in a refined open Bruhat cell in real Grassmannians $G(k, n)$ will be computed.

Lecture 1:	January 28, 2005 (Friday)	4:00 – 5:00pm
Lecture 2:	January 31, 2005 (Monday)	12:00noon – 1:00pm

Lectures will be held in Room 517, Meng Wah Complex

All are welcome