Abstracts of Lectures

Caucher Birkar (University of Cambridge, UK)
Minimal model program and moduli spaces

First, I will quickly recall some of the basic elements of the minimal model program. Then, I concentrate on the interactions between the minimal model program and some moduli problems. In particular, I explain the construction of moduli spaces of varieties of general type via the minimal model program.

Ching-Li Chai (University of Pennsylvania, USA)
Modular varieties and Hecke symmetry

The Hecke symmetry is a salient feature of Shimura varieties. In the more recent past these symmetries have led to the notion of *leaves*, a global structure on the reduction of modular varieties of PEL type defined by Oort, and conjecturally for all Shimura varieties with good reduction. The Hecke symmetry also led to the notion of canonical coordinates on leaves, generalizing the classical Serre–Tate coordinates. We will discuss some recent works related to the Hecke symmetry:

(1) ℓ-adic and p-adic monodromy of leaves, and irreducibility of leaves (joint work with F. Oort). One of the methods for showing that the p-adic monodromy is big is inspired by H. Hida.
(2) CM lifting modulo Hecke symmetry (joint work with B. Conrad and F. Oort).

Christopher Deninger (Münster University, Germany)
Vector bundles and p-adic representations

In this lecture we explain how to attach a p-adic representation to a vector bundle with "strongly semistable reduction of degree zero" on a p-adic curve. We also discuss higher dimensional generalizations. This is a report on joint work with Annette Werner.

Kazuhiro Fujiwara (Nagoya University, Japan)
Galois deformation and algebraic number theory

Since the proof of Iwasawa's main conjecture in the classical case (theorem of Mazur and Wiles), automorphic forms on $GL(2)$ have played an essential role to understand $GL(1)$-problems. After the breakthrough by A. Wiles (Ann. of Math. 1995), there has been a substantial progress in the class field theory for GL_2. In this talk, open problems in classical Iwasawa theory are discussed from this perspective, based on Galois deformations.