

The mini courses are intended to provide an introduction to the fields to Ph.D. students as well as postdocs working in nearby areas.

Mini course by Professor Pengfei Guan McGill University, Montreal, Canada

Title: Topics of nonlinear partial differential equations in complex geometry

Abstract: The main topic is the complex Monge-Ampere equation. We will discuss estimates of Caffarelli-Kohn-Nirenberg-Spruck in the case of strongly pseudoconvex domains using maximum principle and barrier arguments. The arguments can be adapted to deal with the case when there is a suitable subsolution (work of Bo Guan). We then apply the estimates to solve some problems arising from geometry, like geodesic equation in the space of Kahler potentials and the holomorphic invariant of Chern-Levine-Nirenberg. We will also discuss other fully nonlinear equations in several complex variables.