Name: GONGYO, Yoshinori

Research Area: Algebraic Geometry

Key word: Minimal model theory, Semi-ampleness of canonical bundles, Endomorphisms of algebraic varieties, Log Fano varieties, Log Calabi–Yau varieties.

Current research

I am studying geometries which are remarked by the canonical divisor of algebraic varieties. Particularly I am studying the abundance conjecture which is one of the most important conjecture in higher dimensional algebraic geometry. I am also studying characterisations of log Fano and log Calabi–Yau varieties, rational poins on log Fano verieties over a finite field, applications of positivity theorems for algebraic fibre spaces, geometry of varieties admitting non-trivial endomorshisms, pluricanonical representations.

Prerequirements

I hope you know a basic knowledge of Algebraic Geometry likes in

Robin Hartshorne, Algebraic geometry. Graduate Texts in Mathematics, No. 52. Springer-Verlag, New York-Heidelberg, 1977.

Moreover it is very good if you already knew fundamental things of surfaces likes

Arnaud Beauville, Complex algebraic surfaces. Translated from the 1978 French original by R. Barlow, with assistance from N. I. Shepherd-Barron and M. Reid. Second edition. London Mathematical Society Student Texts, 34. Cambridge University Press, Cambridge, 1996.

Then you can go to more advanced studies. And you should know tips of analysis and differential geometry not only algebra. If you have some insight of different area of mathematics, that is very good. This is a big advantage for you. You are very welcome. Personally, I hope some students come to read the text;

D. Huybrechts, Fourier-Mukai transforms in algebraic geometry. Oxford Mathematical Monographs. The Clarendon Press, Oxford University Press, Oxford, 2006.

or J.P. Demailly: Complex analytic and algebraic geometry (http://www-fourier.ujf-grenoble.fr/ demailly/books.html).

You should keep in your mind that you need to do something new if you come to the graduate school. Sometime doing research of mathematics makes you be hard not only be happy. You may need inner (sometimes outer also) toughness.