スーパーグローバルコース数学講義

Introduction to the problem of Resolution of Singularities

Date : Wednesday, April 24
Wednesday, May 8
⋮ every Wednesday
except for June 12
Wednesday, July 17

Time : 14:45 – 16:15

Venue : 127 Conference Room
Faculty of Science Bldg. #3
Kyoto University

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The purpose of this series of lectures is to present an EASY, EASY introduction to the theory of resolution of singularities over a field of characteristic zero, and then to continue onto the discussion of our approach to the problem in positive characteristic, which to this day remains open. My main goal is to make the lectures accessible to the beginning graduate students and even to the advanced undergradauate students as much as possible. The background in algebraic geometry at the level of the textbook by Hartshorne† is preferred, but not absolutely necessary. I will review some basic materials on the way.

1. Introduction:
   (1) What is it to say a variety is nonsingular/singular?
   (2) The very formulation of the problem of resolution of singularities.
   (3) The definition of the "order (multiplicity)" of an ideal, which is the only invariant we use to measure the singularities.
2. Resolution of singularities of a curve embedded in a nonsingular surface
3. Higher dimensional Case (Inductive Scheme)
4. Our approach to the problem in positive characteristic:

† Algebraic Geometry by R. Hartshorne, GTM series 52, Springer-Verlag

❖ 本講義は「スーパーグローバルコース数学講義」として、大学院の学生には 2 単位認定されます。

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