

スーパーグローバルコース数学特別講義 3

Class field theory standpoint and its so different three fundamental generalisations

Wednesday, **July 25**

Friday, **July 27**

Monday, **July 30**

Wednesday, **August 1**

Friday, **August 3**

10:00-12:00 each day

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

本講義は「スーパーグローバルコース数学特別講義3」として
大学院の学生には1単位認定されます。



Ivan Fesenko University of Nottingham

In 1972 A.Weil asserted that “since class field theory pertains to the foundation of mathematics, every mathematician should be as familiar with it as with Galois theory”.

We are still waiting for this to happen.

In 1920 T.Takagi became the first mathematician to present the existence theory as part of class field theory of general type. We are still digesting the impact of his work. The breakthrough of Sh. Mochizuki in his IUT theory invites us to conduct a review of class field theory and its generalisations, two of which were initiated and radically influenced by Japanese researchers.

This series of lectures aims to present class field theory from a revised modern point of view and use this to make new observations about the Langlands program, higher class field theory and anabelian geometry and links between them and their further extensions such as the IUT theory and two-dimensional adelic analysis and geometry.

The lectures will include

- (a) class field theory of special and general type, and how this division has affected and is affecting so much in number theory;
- (b) basic features of higher local fields and their surprising properties;
- (c) the Neukirch class field theory method for one-dimensional fields and its generalisations;
- (d) the Vostokov symbol and its use in the study of Milnor K-theory of higher fields;
- (e) explicit higher class field theory, including the universal Kawada-Satake method;
- (f) translation invariant measure and integration on higher fields and adeles;
- (g) two distinct adelic structures on elliptic surfaces and higher zeta integral as a bridge between them;
- (h) links and perspectives.



京都大学スーパーグローバル大学創成支援事業数学系ユニット
<https://ktgu.math.kyoto-u.ac.jp/>