

The College of Arts & Sciences
Department of Mathematical Sciences

Colloquium

Dr. Yeansu Kim

Chonnam National University

Thursday, October 27th
Room 4221, French Hall West
4:00 – 5:00 pm

TWO MAIN CONJECTURES IN THE LANGLANDS PROGRAM

Langlands program, introduced by Robert Langlands, is a set of conjectures that attempt to build bridges between two different areas: Number Theory and Representation Theory (Automorphic forms). The program is also known as a generalization of well-known theorem called Fermat's Last Theorem. More precisely, when Wiles proved Fermat's Last Theorem, he proved (a special form of) so-called the Taniyama-Shimura conjecture and as a corollary he was able to prove Theorem. Note that the Taniyama-Shimura conjecture states that every elliptic curve is modular and the Langlands program is a generalization of the Taniyama-Shimura conjecture. In the first part of the colloquium, we briefly go over the following subjects:

- (1) Fermat's Last Theorem
- (2) Taniyama-Shimura conjecture
- (3) Langlands program and L-functions.

And then, in the remaining of the talk, we start to explain two main conjectures in the Langlands program: the local Langlands correspondence and the Langlands functoriality conjecture. If time permits, we will also explain recent progress on the conjectures: the generic local Langlands correspondence for GS_{pin} groups and similitude classical groups. This colloquium will be accessible to graduate students (and undergraduate students who are interested in Number theory) at least for the first 20 - 30 minutes.

Refreshments will be served 3:15 – 3:45 pm in the Faculty Lounge
4118 French Hall West