The Fifth Kyushu Joint Seminar

Professor Haruzo Hida

(UCLA)

Non CM components of the 'big' Hecke algebra

Professor Gopal Prasad

(University of Michigan)

Weakly commensurable Zariski-dense subgroups of semi-simple groups and isospectral locally symmetric spaces

Kumamoto University

July 26, 2014

Abstract

1st talk: We will explain some ways of characterizing irreducible components of Hecke algebra whose Galois representation has almost abelian image (CM components). We start with some known/speculative examples to motivate, and end with sketch of proofs for some recent founds.

2ed talk: I will discuss weakly commensurable Zariski-dense subgroups of semisimple groups, jointly introduced with Rapinchuk. We determine when two Zariski dense S-arithmetic subgroups of absolutely almost simple algebraic groups on a field of characteristic 0 are weakly commensurable, and hence prove that many isospectral locally symmetric spaces of simple real algebraic groups are necessarily commensurable. This settles the famous question "Can one hear the shape of a drum?" of M. Kac for these spaces.

Schedule and Venue

- July 26th (Sat), 2014

- 14:00 – 15:00 Prof. Hida

- 15:30 – 16:30 Prof. Prasad

- Place: 熊本大学理学部1号館1・2階講義室 C226

About Kyushu Joint Seminar:

The idea could be traced back to many decades. Thanks to the Kyushu Shinkansen, now it becomes practically possible. We hope that the Q-semi, nick name for the KJS, would provide a common platform for these interested to act and play, with the aim to promote the mathematical activities in big Kyushu area.

The organizer committee consists of four, Takashi Ichikawa (ichikawa@ms.saga-u.ac.jp), Fumiharu Kato (kato@sci.kumamoto-u.ac.jp), Kunio Obitsu (obitsu@sci.kagoshima-u.ac.jp), and Lin Weng (weng@math.kyushu-u.ac.jp).

If you have good candidate for speaker, please feel free to contact us: It should not be bounded by our research fields. Currently, we would like to arrange the Q-semi 2-4 times a year in Kyushu area.