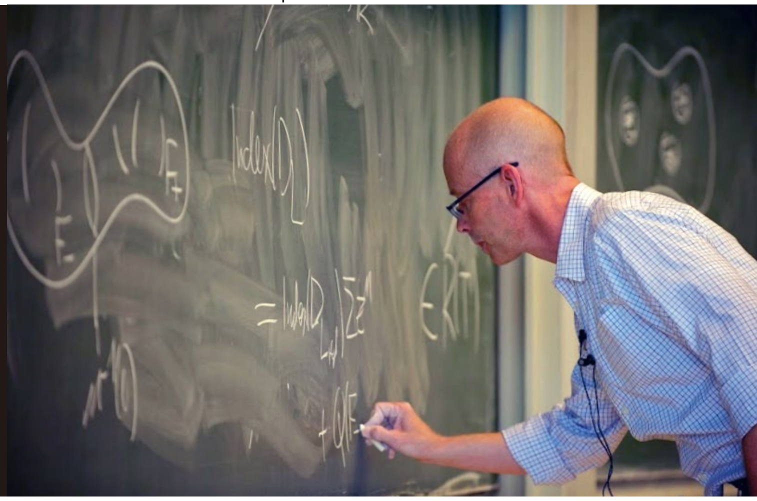
スーパーグローバルコース数学特別講義３

The Noncommutative Geometry of Tempered Representations



April 14 - May 26, 2017
＊Every Friday except May 5

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

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The purpose of these lectures is to study the tempered dual of a real reductive group as a noncommutative topological space.

The unitary dual of a locally compact group may be identified with the spectrum of its group C*-algebra. The C*-algebra point of view equips the unitary dual with a topology, and it also associates to every unitary representation of the group, irreducible or not, a closed subset of the dual. In the case of a real reductive group, the tempered dual is the closed set associated to the regular representation.

The tempered dual may also be thought of as the spectrum of the so-called reduced C*-algebra. Following standard practice in C*-algebra theory and noncommutative geometry, we shall interpret the problem of studying the tempered dual as a noncommutative topological space as the problem of studying the reduced C*-algebra up to Morita equivalence.

The extra effort that is required to study the tempered dual in this more elaborate way, and not just a set, is rewarded in spectacular fashion by a beautiful isomorphism statement in K-theory that was conjectured by Connes and Kasparov, and later proved by Wassermann and Lafforgue. I shall describe a proof of the Connes-Kasparov isomorphism for real reductive groups that mostly follows the approach outlined by Wassermann but also uses ideas introduced by Vincent Lafforgue, together with new index-theory calculations that extend Lafforgue's ideas.

❖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。

	10:00-12:00	14:00-16:00
April 14	**1. Group C*-algebras**	
21	**2. Noncommutative topological spaces**	
28	**3. Compact and compact modulo center representations**	**4. Reductive groups and parabolic subgroups**
May 12	**5. Introduction to the Connes-Kasparov conjecture**	**6. Parabolic induction from a noncommutative-geometric point of view**
19	**7. Determination of the tempered dual as a noncommutative topological space**	
26	**8. The Connes-Kasparov isomorphism**	