UEDA, Yoshimichi Professor

Office: Rm 301 in Math. Bldg.

Telephone: +81 (0)52–789–2823 (ext. 2823)

E-mail: ueda@math.nagoya-u.ac.jp

Website: http://www.math.nagoya-u.ac.jp/~ueda/

Research Interest:

- Operator algebras
- Non-commutative analysis

Research Summary:

I have studied various topics based on operator algebras. The highlights of operator algebras are: fights against "non-commutative phenomena" and overcoming obstacles from "infinite dimensionality". Finding suitable algebraic formulations is important in view of "non-commutativity", and it is interesting that we need skills of analysis to overcome obstacles from "infinite dimensionality". Operator algebras are so cool and quite an interesting and broad subject in mathematics.

The keywords of my research include: von Neumann algebras, free product (with amalgamation), HNN extension, quantum group, subfactor, Jones index, ergodic equivalence relation, free probability theory, random matrix, non-commutation function space.

Major Publications:

[1] Yoshimichi Ueda, A minimal action of the compact quantum group $\mathrm{SU}_q(n)$ on a full factor. Journal of Mathematical Society of Japan, Vol. 51 (1999), 449 – 461.

[2] Dimitri Shlyakhtenko and Yoshimichi Ueda, Irreducible subfactors of $L(\mathbb{F}_\infty)$ of index $\lambda > 4$. Journal für die reine und angewandte Mathematik, Vol. 548 (2002), 149 – 166.

[3] Fumio Hiai, Denis Petz and Yoshimichi Ueda, Free transportation cost inequalities via random matrix approximation. Probability Theory and Related Fields, Vol. 130 (2004), 199 – 211

[4] Fumio Hiai, Takuho Miyamoto and Yoshimichi Ueda, Orbital approach to microstate free entropy. International Journal of Mathematics, Vol. 20 (2009), 227–273.

[5] Yoshimichi Ueda, On peak phenomena for non-commutative H^∞. Mathematische Annalen, Vol. 343 (2009), 421–429.

[6] Yoshimichi Ueda, Factoriality, type classification and fullness for free product von Neumann algebras. Advances in Mathematics, Vol. 228 (2011), 2647–2671.

[7] Yoshimichi Ueda, Discrete cores of type III free product factors. American Journal of Mathematics, Vol. 138 (2016), 367–394.

[8] Yoshimichi Ueda, Matrix liberation process I: Large deviation upper bound and almost sure convergence. Journal of Theoretical Probability, to appear.

Education and Appointments:

Mar. 1999	Completed Graduate program, Kyushu University
Apr. 1999	Research Associate, Hiroshima University
Sep. 1999	Doctoral degree (Ph.D.) from Kyushu University
Apr. 2002	Associate Professor, Kyushu University
Oct. 2017	Professor, Nagoya University

Message to Prospective Students:

You should finish to learn calculus, linear algebra, general topology, complex analysis, measure theory, and elementary functional analysis prior to your entrance to our graduate school for your study on operator algebras. You can obtain enough knowledge on complex analysis, measure theory, and elementary functional analysis from two very fine books "Real and Complex Analysis" by W. Rudin and "A Guide to Functional Analysis" by S.G. Krantz. These three subjects form an important basis for the study of any branches of mathematical analysis. It is also very nice if you have already learnt a little about abstract algebra and geometry as well as probability theory.

I usually advise my students to study topics, which are different from my research topics as well as other student's ones under my guidance, within operator algebras in a broad sense. This is because I hope that any student studies hard as an independent and important member of our group.