HAYASHI, Takahiro Associate Professor

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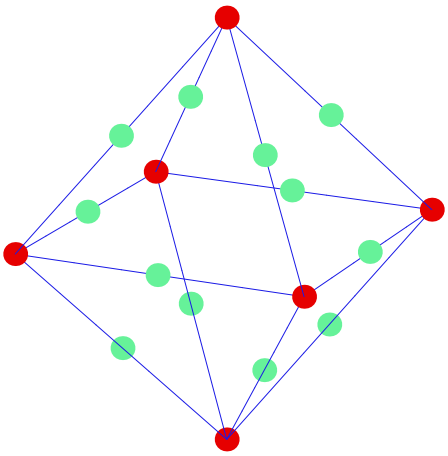
Membership of academic societies:
Mathematical Society of Japan

Research Interest:

- Hopf algebras and their generalizations
- Reprentations of quantum groups
- Tensor categories

Research Summary:

I am currently interested in Hopf algebras and their generalizations, such as face algebras, weak Hopf algebras and Hopf algebebroids. These structures relate to many area of mathematics and mathemacical physics, including, low dimensional topology, operator algebras, Yang-Baxter equations and conformal field theory.



Major Publications:

[1] T. Hayashi, Sugawara operators and Kac-Kazhdan conjecture, Invent. Math., **94** (1988), no. 1, 13-52.

[2] T. Hayashi, Quantum group symmetry of partition functions of IRF models and its application to Jones' index theory, Commun. Math. Phys., **157** (1993), 331-345.

[3] T. Hayashi, Coribbon Hopf (face) algebras generated by lattice models. J. Algebra, **233** (2000), 614–641.

[4] T. Hayashi, A brief introduction to face algebras, in New trends in Hopf algebra theory, La Falda 1999, Contemp. Math. 267, Amer. Math. Soc., 2000, pp. 161-176.

Education and Appointments:

1988 Assistant, Nagoya University

1995 Assistant Professor, Nagoya University

Message to Prospective Students:

The following is a list of possible text books for Small Group Class (Seminar).

[1] C. Kassel, Quantum Groups, Graduate texts in Mathematics 155, Springer-Verlag, 1995.

[2] D. E. Radford, Hopf Algebras, World Scientific, 2012.

[3] J. Hong and S.-J. Kang, Introduction to Quantum Groups and Crystal Bases, Amer. Math. Soc., 2002.

[4] J. C. Jantzen, Lectures on Quantum Groups, American Mathematical Society, 1996.

[5] V. G. Kac, Infinite-Dimensional Lie Algebras, 3rd ed., Cambridge Univ. Press, 1990.