October 17, 2013

YOJI YOSHII
CURRICULUM VITAE

Address: Akita National College of Technology,
1-1 Iijima Bunkyocho Akita-shi Japan 011-8511
Citizenship: Japanese
Research Interest: Root systems, Lie algebras, non-associative algebras

Education:

1999: Ph.D Mathematics, University of Ottawa
Thesis: "The coordinate algebra of extended affine Lie algebras of type A_1"
Supervisor: Professor Erhard Neher

1993: M. Sc. Mathematics, University of Alberta
Thesis: "A survey of Kazhdan-Lusztig conjectures"
Supervisor: Professor Robert Moody

1985: M. Sc. Mathematics Education, University of Tsukuba
Thesis: "Universal central extensions of Chevalley algebras over the algebra of Laurent polynomials in n-variables"
Thesis: "A teaching method of linear transformations on the plane in High School"
Supervisor: Professor Eiichi Abe

1982: B. Sc. Mathematics, Gakushuin University
Supervisor: Professor Kazuo Akao

Employment:

1) 1985 - 1991: High School Teacher, Komaba School attached to University of Tsukuba
2) 1992 - 1993: Teaching Assistant, University of Alberta
3) 1994 - 1999: Teaching Assistant, University of Ottawa
4) September 1999 - August 2000: Postdoctoral Fellow, University of Ottawa
5) September 2000 - December 2000: Fields Institute Postdoctoral Fellow, Fields Institute
6) 2001: PIMS Postdoctoral Fellow, University of Alberta
7) 2002 - June 2002: NSERC Postdoctoral Fellow, University of Alberta
8) July 2002 - August 2003: NSERC Postdoctoral Fellow, University of Wisconsin-Madison
9) September 2003 - July 2004: Assistant Professor, University of Saskatchewan
10) August 2004 - June 2006: Assistant Professor, North Dakota State University
11) October 2006 - March 2007: Researcher, Center for Research on International Cooperation in Educational Development, University of Tsukuba
12) April 2007 - March 2009: Associate Professor, Akita National College of Technology

13) April 2009 - September 2013: Professor, Akita National College of Technology (April to July in 2011: Part-time Lecturer in Akita International University)

14) October 2013 - : Professor, Iwate University

Award: Thesis prize 1999 for the best Ph.D thesis of the Ottawa-Carleton Institute of Mathematics and Statistics

Publications:

1) Published papers:

[1] *Universal central extensions of Chevalley algebras over Laurent series polynomial rings and G.I.M. Lie algebras* (with J. Morita), Proc. Japan Acad. Ser., A **61** (1985), 179–181.

[2] *Jordan tori*, Math. Reports Acad. Sci. Canada, **18**(4) (1996), 153–158.

[3] *Coordinate algebras of extended affine Lie algebras of type* A_1, J. Algebra **234** (2000), 128–168

[4] *Root-graded Lie algebras with compatible grading*, Comm. Algebra **29** (2001), 3365–3391.

[5] *Classification of division* $\mathbb{Z}^n$*-graded alternative algebras*, J. Algebra **256** (2002), 28–50.

[6] *Classification of quantum tori with involution*, Canad. Math. Bull. **45**(4) (2002), 711–731

[7] *Some factorizations in universal enveloping algebras of three dimensional Lie algebras and generalizations* (with S. Berman and J. Morita), Canad. Math. Bull. **45**(4) (2002), 525–536

[8] *Derivations and invariant forms of alternative or Jordan* G*-tori* (with E. Neher), Trans. Amer. Math. Soc. **355**(3) (2002), 1079–1108.

[9] *Structurable tori and extended affine Lie algebras of type* BC_1 (with B. Allison), Pure Appl. Algebra **184**(2-3) (2003), 105–138.

[10] *Root systems extended by an abelian group and their Lie algebras*, J. Lie Theory 14 (2004), no.2, 371–394.

[11] *Locally extended affine Lie algebras* (with J. Morita), J. Algebra **301** (2006), 59–81.

[12] *Lie tori – A simple characterization of extended affine Lie algebras*, RIMS., Kyoto Univ., Vol. 42 (2006), 739–762.

[13] *Lie G-tori of symplectic type* (with G. Benkart), Quarterly J. Math Vol.57, no.4 (2006), 425–448.

[14] *Structurable tori* (with B. Allison and J. Faulkner), Comm. Algebra **36**(6) (2008), 2265–2332.

[15] *Cayley polynomials*, Algebra and Logic, **47**(1) (2008), 32–41.

[16] *Locally extended affine root systems*, Proceedings of the Workshop on Quantum Affine Algebras, Extended Affine Lie Algebras and Applications, Contemp. Math., **508** (2010), 285–302.

2) Conference Proceedings:

[17] *Jordan analogue of Laurent Polynomial Algebra*, Proceedings of International Conference on Jordan Structures in Malaga Spain (1997), 191–197.

[18] *Lie G-tori*, Proceedings of the 19th Summer Seminar on Lie algebras and related topics in Kyushu Japan (2003), 22–25.

[19] *Lie tori of rank 1* (with B. Allison and J. Faulkner), RESENHAS IME-USP, Vol. 6, No. 2/3 (2004), 99–109.

[20] *Locally affine root systems and locally affine Lie algebras*, Proceedings of 25th Summer Seminar on Lie algebras and related topics (2010), 19–26.

[21] *Minimal locally affine Lie algebras*, Proceedings of 27th Summer Seminar on Lie algebras and related topics (2012), 28–36.

[22] *New kinds of polynomials*, Proceedings of 28th Summer Seminar on Lie algebras and related topics (2013), 24–33.

4) Submitted paper:

[23] *Locally loop algebras and locally affine Lie algebras* (with J. Morita)

5) Paper in preparation:

[24] *Minimal LALAs* (with J. Morita)

Invited Talks:

1) "Extended affine Lie algebras of type A_1 and Jordan tori", International Conference on Jordan Structures, Malaga Spain, June 1997.

2) "Jordan tori", AMS Meeting, Washington D.C., January 2000.

3) "Division (Δ, G)-graded Lie algebras", Conference on Jordan-Algebren, Oberwolfach Germany, August 2000.

4) "A simple characterization of the core of an extended affine Lie algebra", CMS meeting, Saskatoon, June 2001.

5) "A simple characterization of the core of an extended affine Lie algebra", International Conference of Algebra, Beijing China, June 2001.

6) "Root systems extended by an abelian group G and Lie G-tori", CMS meeting, Toronto, December 2001.

7) "Lie tori and structurable tori", CMS meeting, Ottawa, December 2002.

8) "Recent progress for Lie G-tori", Workshop and Conference, Fields Institute, Toronto, July 2003.

9) "Lie G-tori", 19th Summer Seminar on Lie algebras and related topics, Kyushu, Japan, August 2003.

10) "Structurable tori", AMS meeting, Phoenix, Arizona, January 2004.

11) "Introduction of new polynomials", Colloquium, University of Virginia, February 2004.

12) "New examples of EALAs and LEALAs", International Conference on infinite dimensional Lie algebras, Beijing, China, July 2004.

13) "Seligman's Lie algebras and Lie tori", Workshop on Lie theory, Osaka University, Japan, July 2005.

14) "Locally extended affine Lie algebras", Workshop on Jordan Algebras and related fields, University of Ottawa, September 2005.

15) "Extended affine root systems and their Lie algebras", Colloquium, University of Regina, January 2006.

16) "From complex numbers to quaternions", Colloquium talk in Eureka College, Bloomington Indiana USA, August 2006.

17) "A local version of affine Kac-Moody Lie algebras", International Conference on Quantum affine Lie algebras, extended affine Lie algebras, and applications, Banff International Research Station, Canada, March, 2008.

18) "Locally affine root systems and locally affine Lie algebras", International Workshop on graded algebras and superalgebras, Memorial University of Newfoundland, Canada, August, 2008.

19) "Locally affine root systems and locally affine Lie algebras", Algebra Seminar, University of Ottawa, Canada, September, 2008.

20) "Locally affine root systems and locally affine Lie algebras", 25th Summer Seminar on Lie algebras and related topics, Kyushu Institute of Technology, August, 2009.

21) "Introduction of new kinds of polynomials", Japan Mathematical Society Tohoku shibukai, University of Akita, Feburuary, 2010.

22) "Minimal locally affine Lie algebras", 27th Summer Seminar on Lie algebras and related topics, University of Hiroshima, August, 2011.

23) "Classification of locally affine Lie algebras", Algebra Seminar, University of Osaka, March, 2012.

24) "About new polynomials", 28th Summer Seminar on Lie algebras and related topics, University of Yamaguchi, August, 2012.

25) "Locally affine Lie algebras", Conference on Geometric Methods in Infinite-dimensional Lie Theory, Fields Institute, Toronto, Canada, March, 2013

26) "Reflection spaces of abelian groups", 29th Summer Seminar on Lie algebras and related topics, Osaka Shoin University, August, 2013.

Referee Experience: Comm. Algebra, J. Pure and Applied Algebra, Canad. Math. Bull., Rocky Mountain J. Math., Algebra Colloquium, RIMS Kokyuroku, Communications in Algebra.

Organizing Conference: Workshop on Nonassociative Algebras, Fields Institute, Toronto, May 2005:

Dedicated to Professor Bruce Allison in the occasion of his 60th birthday, http://www.fields.utoronto.ca/programs/scientific/04-05/nonassociative/

Teaching Experience:

1998: Math 3344, Discrete Mathematics, Graph Theory, University of Ottawa.
2000: Math 3143, Ring Theory and Applications, University of Ottawa.
2001: Math 125, Linear algebra and its applications, University of Alberta.
2002: Math 120, Linear algebra and its applications, University of Alberta.
2003: Math 223, Calculus III for engineering, Math 273, Vector Calculus, University of Saskatchewan.
2004: Math 124, Calculus II for engineering, Math 116, Calculus II, Math 110, Calculus I, University of Saskatchewan.
2004: Math 265, Calculus III (4 classes), North Dakota State University.
2005: Math 166, Calculus II (4 classes), Math 265, Calculus III, Help Session for Actuarial Science, Math 265, Calculus III (4 classes), North Dakota State University.
2006: Math 259, Calculus III, Math 266, Differential equations, North Dakota State University.
2007: Basic Math I, Basic Math III, Calculus I, Applied Analysis IIIB, Akita National College of Technology
2008: Basic Math II, Calculus I, Calculus II, Applied Analysis IIIB, Applied Math, Akita National College of Technology
2009: Basic Math II, Calculus II, Basic Analysis, Math Seminar, Applied Analysis II, Applied Math, Akita National College of Technology
2010: Basic Math III, Calculus II, Basic Analysis, Math Seminar, Applied Analysis I, II, III, Applied Math, Akita National College of Technology
2011: Basic Math I, II, III, Applied Math, Akita National College of Technology
College Algebra, Akita Inetrnational University from April to July
2012: Basic Math II, Calculus I, II, Akita National College of Technology
2013: Basic Math I, Calculus II, Applied Analysis II, Applied Math, Akita National College of Technology
2013: Linear Algebra II, Analysis II, Topics in Algebra II, Iwate University