Curriculum Vitae

2024 October

Koji Fujiwara

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Education:
1986. BSc. Univ of Tokyo, Mathematics
1988. MSc. Univ of Tokyo, Mathematics
1993. DrSc. Univ of Tokyo. Mathematical Science

Positions:
1990 - 1996. Instructor. Keio University, Department of Mathematics
1996 - 1998. Assistant professor. Keio University, Department of Mathematics
1998 - 2007. Associate professor. Tohoku University, Mathematics Institute
2007 - 2012. Professor. Tohoku University, Graduate School of Information Science
2012 - present. Professor. Kyoto University, Department of Mathematics

Awards and Distinctions:
1993. Canon Foundation in Europe Fellowship
2005. Geometry Prize (Mathematical Society of Japan).
2013. Commendation for Science and Technology (by the Minister of Education, Culture, Sports, Science and Technology, Japan)
2015. Fall Prize (Mathematical Society of Japan)
2016. Eisenbud Professor (MSRI, USA)
2018. Invited Speaker (Topology section), International Congress of Mathematicians, Rio de Janeiro, 2018.
2020. Visiting Professorship. Leverhulme Trust (declined due to Covid)
2023. Research work (joint with Z.Sela) presented at Seminaire N. Bourbaki. Paris.
2023-2028. Honorary member, the SCR of Magdalen college, U. Oxford.

Service:
2019 - present. Chief and Managing editor. Kyoto Journal of Mathematics
2024 - present. Chief editor. Journal of Mathematical Society of Japan.

Long term visits (selected):
1993 Apr - Jul. Univ of Warwick (UK).
1993 Oct - 1995 Mar. MSRI (USA).
1998 Sep - 1999 Mar. Univ of Utah (USA).
1999 Apr - 2000 Jan. Univ of Warwick (UK).
2005 Sep - 2006 Feb, 2006 Aug. Max Planck Institute (Germany)
2007 Sep - Dec. MSRI (USA)
2016 Aug - Dec. MSRI (USA)
2022 Sep - 2023 March. University of Oxford (UK).

Invited talks (selected):
2001. 1st AMS-SMF meeting. ENS Lyon.
2002. 15th JAMI (Japan-US Math Institute) meeting. Johns Hopkins U.
2004. Brooks memorial meeting. Technion. Israel.
2006. Groups of diffeomorphisms (Morita conference), U Tokyo
2011. Ballmann's 60th birthday conference. MPI, Bonn
2013. The XXIIth Rolf Nevanlinna Colloquium. Plenary talk. Helsinki.
2014. Geometric and Combinatorial Group Theory. In honor of Eliyahu Rips workshop, Hebrew U, Israel.
2015. Cornell Topology Festival.
2018. International Congress of Mathematicians 2018. Brazil.
2019. Aspects of non-positive and negative curvature in group theory (Bestvina conference). Luminy, France
2024. International Colloquium on randomness, geometry, and dynamics. IISER. India.

Meetings/Programs organized (selected):
2008. "Geometric Group Theory, Geometric Analysis, and Mapping Class Groups". Japan-U.S. Mathematics Institute. Johns Hopkins University.
2014. The 7th MSJ-SI "Hyperbolic Geometry and Geometric Group Theory". Mathematical Society of Japan, Seasonal Institute. U Tokyo.
2016. RIMS Project 2016. "Differential Geometry and Geometric Analysis" RIMS, Kyoto U.

List of publication.

1. K. Fujiwara, A construction of negatively curved manifolds, **Proc. Japan Acad. Ser.A, 64** (1988), no. 9, 352–355.

2. K. Fujiwara, Metric deformation of non-positively curved manifolds, **J. Math. Soc. Japan, 42** (1990), no. 2, 213–219.

3. K. Fujiwara, On the bottom of the spectrum of the Laplacian on graphs, *Geometry and Its Applications*, 1993, World Scientific, edit. by T.Nagano et al, 21–27.

4. K. Fujiwara, Convergence of the eigenvalues of Laplacians in a class of finite graphs, *Geometry of the Spectrum*, edit. by R. Brooks, C. Gordon, P. Perry, Contemporary Mathematics, vol 173, AMS, 1994, 115-120.

5. K. Fujiwara, Eigenvalues of Laplacians on a closed Riemannian manifold and its nets, **Proc. AMS., Vol 123, No 8**, (1995), 2585 - 2594.

6. K. Fujiwara, Growth and the spectrum of the Laplacian of an infinite graph, **Tohoku Math J. 48**, (1996), 293-302.

7. K. Fujiwara, Laplacians on rapidly branching trees, **Duke Math Jour. 83, no 1**, (1996), 191-202.

8. D.B.A. Epstein, K. Fujiwara, The second bounded cohomology of word hyperbolic groups, **Topology 36**, (1997), 1275-1289.

9. K. Fujiwara, The second bounded cohomology of a group acting on a Gromov-hyperbolic space, **Proc. London Math. Soc.(3) 76, no 1** (1998), 70-94.

10. K. Fujiwara, A. Nevo, Maximal and pointwise Ergodic Theorems for word-hyperbolic groups, **Erg. Th. and Dyn. Sys. 18. No 4**, (1998), 843-874.

11. K.Fujiwara, On isometric actions of SL(n,Z) on visibility manifolds, **Geom. Dedicata, vol 77** (1999) No2, 203-208.

12. K.Fujiwara, 3-manifold groups and property T of Kazhdan, **Proc. Japan Acad. Ser.A, 75** (1999), no.7, 103–104.

13. K. Fujiwara, The second bounded cohomology of amalgamated free product of groups, **Trans. A.M.S. 352** (2000), no.3, 1113–1129.

14. K.Fujiwara, On a theorem by Farb and Masur, **Proc. AMS 128** (2000), 3463-3464.

15. K. Fujiwara, K. Ohshika, The second bounded cohomology of 3-manifold groups, **Publ. Res. Inst. Math. Sci. 38** (2002), no. 2, 347–354.

16. K.Fujiwara, T.Soma, Bounded classes in the cohomology of manifolds, **Geom. Dedicata. 92**, 73-85, (2002).

17. M.Bestvina, K.Fujiwara, Bounded cohomology of subgroups of mapping class groups. **Geometry and Topology, Volume 6** (2002) 69–89.

18. K.Fujiwara, On the outer automorphism group of a hyperbolic group. **Israel J of Math.131**, (2002) 277-284.

19. K.Fujiwara, T.Shioya, S.Yamagata. Parabolic isometries of CAT(0) spaces and CAT(0)-dimensions. **Algebraic and geometric topology. 4** (2004) 861-891.

20. K.Fujiwara. On non bounded generation of discrete subgroups in rank-1 Lie group. in *Geometry, spectral theory, groups, and dynamics*, 153–156, Contemp. Math., 387, Amer. Math. Soc., 2005.

21. K.Fujiwara, P.Papasoglu, JSJ-decompositions of finitely presented groups and complexes of groups, **GAFA, 16, no 1** (2006), 70-125.

22. K.Fujiwara, K.Nagano, T.Shioya. Fixed point sets of parabolic isometries of CAT(0)-spaces. **Comm.Math.Helv. 81** (2006), 305-335.

23. M.Bestvina, K.Fujiwara. Quasi-homomorphisms on mapping class groups. **Glasnik Matematicki, Vol. 42, No.1** (2007), 213-236.

24. K.Fujiwara, K.Whyte. A note on spaces of asymptotic dimension one. **Algebraic and Geometric Topology, 7** (2007) 1063-1070.

25. G.Bell, K.Fujiwara. The asymptotic dimension of a curve graph is finite. **J. London Math. Soc. 77** (2008) 33-50.

26. K.Fujiwara, Subgroups generated by two pseudo-Anosov elements in a mapping class group. I. Uniform exponential growth. in *Groups of*

Diffeomorphisms, 283-296, ASPM 52, 2008, Mathematical Society of Japan.

27. K.Fujiwara, Quasi homomorphisms on mapping class groups, in *Handbook of Teichmuller Theory, Volume II*. 241-270. 2009, EMS.

28. M.Bestvina, K.Fujiwara. A characterization of higher rank symmetric spaces via bounded cohomology. **GAFA, 19, no 1**. (2009), 11-40.

29. Francois Dahmani, Koji Fujiwara, Copies of a one-ended group in a Mapping Class Group. **Groups, Geometry, and Dynamics, Volume 3, Issue 3**, (2009), 359-377.

30. Danny Calegari, K.Fujiwara. Stable commutator length in word-hyperbolic groups. **Groups, Geometry, and Dynamics**. Volume 4, Issue 1, (2010), 59-90.

31. Danny Calegari, Koji Fujiwara. Combable functions, quasimorphisms, and the central limit theorem. **Ergodic Theory and Dynamical Systems 30**, (2010) 1343-1369.

32. Pierre-Emmanuel Caprace, Koji Fujiwara. Rank one isometries of buildings and quasi-morphisms of Kac-Moody groups. **Geom. and Funct. Anal. 19, Number 5**(2010) 1296-1319.

33. Koji Fujiwara, Jason Fox Manning. CAT(0) and CAT(-1) fillings of hyperbolic manifolds. **Jour Diff Geometry Volume 85, Number 2** (2010), 229-270.

34. Koji Fujiwara, Jason Fox Manning. Simplicial volume and fillings of hyperbolic manifolds. **Algebraic & Geometric Topology**. 11 (2011) 2237-2264.

35. Koji Fujiwara, Tetsu Toyoda, Random groups have fixed points on CAT(0) cube complexes, **Proc. Amer. Math. Soc. Volume 140, Number 3**, (2012), 1023-1031.

36. K. Fujiwara, Geometry of the Funk metric on Weil-Petersson spaces, **Math. Zeit.** (2013), Volume 274, Issue 1-2, pp 647-665.

37. Francois Dahmani, Koji Fujiwara, Vincent Guirardel. Free groups of interval exchange transformations are rare. **Groups, Geometry, and Dynamics.** Volume 7, Issue 4, (2013), pp. 883-910.

38. M. Bestvina, K. Bromberg, K. Fujiwara, J. Souto. Shearing coordinates and convexity of length functions on Teichmueller space. **Amer. Jour. Math.** Volume 135, Number 6, (2013). pp. 1449–1476.

39. K. Fujiwara. Subgroups generated by two pseudo-Anosov elements in a mapping class group. II. Uniform bound on exponents. **Trans. Amer. Math. Soc**. 367 (2015), no. 6, 4377–4405.

40. D. Calegari, K. Fujiwara, Counting subgraphs in hyperbolic graphs with symmetry. **J. Math. Soc. Japan** 67 (2015), no. 3, 1213–1226.

41. Mladen Bestvina, Kenneth Bromberg, Koji Fujiwara. Constructing group actions on quasi-trees and applications to mapping class groups. **Publ. Math. Inst. Hautes Études Sci.** 122 (2015), 1–64.

42. Koji Fujiwara. Asymptotically isometric metrics on relatively hyperbolic groups and marked length spectrum. **Journal of Topology and Analysis** 7, no 2, 2015, 345-359.

43. Bestvina, Mladen; Bromberg, Ken; Fujiwara, Koji. Bounded cohomology with coefficients in uniformly convex Banach spaces. **Comment. Math. Helv.** 91 (2016), no. 2, 203–218.

44. Bestvina, Mladen; Bromberg, Ken; Fujiwara, Koji. Stable commutator length on mapping class groups. **Ann. Inst. Fourier** 66 (2016), no. 3, 871–898.

45. Fujiwara, Koji; Kapovich, Michael. On quasihomomorphisms with noncommutative targets. **Geom. Funct. Anal.** 26 (2016), no. 2, 478–519.

46. Fujiwara, Koji. Can one hear the shape of a group? *Geometry and topology of manifolds*, 139–146, Springer Proc. Math. Stat., 154, Springer, 2016.

47. Bestvina, Mladen; Fujiwara, Koji. Handlebody subgroups in a mapping class group. *In the tradition of Ahlfors-Bers. VII*, 29–50, Contemp. Math., 696, Amer. Math. Soc., Providence, RI, 2017.

48. Fujiwara, Koji. Constructing group actions on quasi-trees. *Proceedings of the International Congress of Mathematicians, Rio de Janeiro 2018*. Vol. II. Invited lectures, 1087–1114, World Sci. Publ., Hackensack, NJ, 2018.

49. Bestvina, Mladen; Bromberg, Kenneth; Fujiwara, Koji. The verbal width of acylindrically hyperbolic groups. **Algebr. Geom. Topol.** 19 (2019), no. 1, 477–489.

50. Fujiwara, Koji; Kabaya, Yuichi. Computing Kazhdan constants by semidefinite programming. **Exp. Math.** 28 (2019), no. 3, 301–312.

51. Bestvina, Mladen; Bromberg, Ken; Fujiwara, Koji; Sisto, Alessandro. Acylindrical actions on projection complexes. **Enseign. Math.** 65 (2019), no. 1–2, 1–32.

52. Fujiwara, Koji; Shioya, Takashi. Graph manifolds as ends of negatively curved Riemannian manifolds. **Geom. Topol.** 24 (2020), no. 4, 2035–2074.

53. Dahmani, Francois; Fujiwara, Koji; Guirardel, Vincent. Solvable groups of interval exchange transformations. **Ann. Fac. Sci. Toulouse Math.** (6) 29 (2020), no. 3, 595–618.

54. Breuillard, Emmanuel; Fujiwara, Koji. On the joint spectral radius for isometries of non-positively curved spaces and uniform growth. **Ann. Inst. Fourier** 71 (2021), no. 1, 317–391.

55. Mladen Bestvina, Ken Bromberg, Koji Fujiwara. Proper actions on finite products of quasi-trees. **Ann. H. Lebesgue** 4 (2021), 685–709.

56. Koji Fujiwara, Panos Papasoglu. Asymptotic dimension of planes and planar graphs. **Trans. Amer. Math. Soc.** 374 (2021), no. 12, 8887–8901.

57. Mladen Bestvina, Koji Fujiwara, Derrick Wigglesworth. The Farrell-Jones conjecture for hyperbolic-by-cyclic groups. **Int. Math. Res. Not.** (2023), no.7, 5887-5904.

58. Koji Fujiwara, Zlil Sela. The rates of growth in a hyperbolic group. **Inventiones mathematicae** 233 (2023), issue 3. 1427 - 1470.

59. K. Fujiwara, S. Schleimer, Asymptotic dimensions of the arc graphs and disk graphs **Algebr. Geom. Topol.** 24 (2024), no. 5, 26552672.

60. Koji Fujiwara. The rates of growth in an acylindrically hyperbolic group. to appear in **Groups, Geometry and Dynamics**.