

# Curriculum Vitae.

## Kenji FUKAYA

### Personal Details

Nationality Japan  
Date of birth 12th March 1959  
Affiliation Department of Mathematics, Graduate school of Science,  
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### Education

1978–1981 University of Tokyo (under graduate)  
1982–1983 Graduate School, University of Tokyo, Department of Mathematics  
1986 March Degree of Doctor in Science, University of Tokyo (Thesis [4])

### Academic Employment

1983–1986, University of Tokyo, Research Assistant  
1987–1990 (June), University of Tokyo, Associate Professor  
1994- Kyoto University, Professor

### Other Professional Activities

Chairman of the Math. Committee of the Science Council of Japan. (2006 - )  
Member of the Research Center of the Science System (in Japanese Society of Promotion of Science). (2004 - )  
Executive board member of Math. Society of Japan. (1996 - 2000, 2005 - )  
Editorial board member of  
Differential Geometry and its applicaiton, Asian Journal of Math., Journal of Differential Geom., Geometriae Dedicata, Journal of Math. Kyoto University.

### Area of mathematical research

Geometry (Symplectic Geometry, Gauge Theory, Riemannian Geometry, etc.).

### Award

Geometry prize (1989), Spring Prize (Math. Soc. of Japan) (1994)  
Inoue Prize for Science (2002) , Japan Academy Award (2003).

### Selected list of Publications

1. A finiteness theorem for negatively curved manifolds, J. Differential Geometry 20 (1984) 497 - 521.
2. Collapsing of Riemannian manifolds and Eigenvalues of Laplace operators, Inventiones Mathematicae 87 (1987) 517-557 .
3. Collapsing Riemannian manifolds to ones of lower dimension, J. Differential Geom. 25 (1987) 139 - 156.
4. A boundary of the set of the Riemannian manifolds with bounded curvatures and diameters, J. Differential Geom. 28 (1988) 1-21.
5. Almost nonpositively curved manifolds, (with T.Yamaguchi) , J. Differential Geom. 33 (1991) 61-90.
6. Collapsing Riemannian manifolds and its application, in the Proceeding of International Congress of Mathematics Kyoto (1991), 491 - 500.

7. Nilpotent structures and invariant metrics on collapsed manifolds, (with J.Cheeger and M.Gromov) *Journal of American Mathematical Society* 5 (1992) 327 - 372.
8. Floer homology for oriented 3-manifolds in "Aspects of Low Dimensional Topology", ed. by Matumoto and Morita, *Advanced Studies in Pure Mathematics* 20 (1992), 1 - 92.
9. The fundamental group of almost nonnegatively curved manifolds, *Annals of Math.* 136 (1992) 253 - 333 (with T.Yamaguchi)
10. Morse homotopy,  $A^\infty$ -Category, and Floer homologies, in "Proceedings of Garc Workshop on GEOMETRY and TOPOLOGY" ed. by H.J. Kim, Seoul National University (1994), 1 - 102.
11. Isometry group of singular spaces, *Math. Zeitschrift* 216, (1994) 31 - 44 (with T. Yamaguchi).
12. Floer homology for 3-manifolds with boundary -abstract -, in "Topology Geometry and Field theory" ed by Fukaya,Furuta,Khono,Kotchick, World Scientific, Singapore (1994), 1 - 22.
13. Morse homotopy and Chern-Simons Perturbation theory, *Commun. Math. Phys.* 81 (1996) 37 - 90.
14. Floer homology of connected sum of homology 3-spheres, *Topology* 35 (1996) 88 - 136.
15. Morse homotopy and its quantization, *AMS/IP Studies in Advanced Mathematics* 2 1997, 409 - 440.
16. Zero-loop open string on cotangent bundle and Morse homotopy. *Asian Journal of Mathematics* 1 (1998) pp 96 - 180. (with Y.Oh).
17. Anti-Self-Dual equation on 4-manifolds with degenerate metric, *Geometric Analysis and Functional Analysis* 8 (1998) 466 - 528.
18. Arnold conjecture and Gromov-Witten invariant, *Topology* 38, 1999, 933 - 1048. (with K. Ono).
19. Floer homology and Gromov-Witten invariants over  $\mathbf{Z}$  of general symplectic manifolds, *Advanced Studies in Pure Math.* 31 (2001) 75 - 91. (with K.Ono).
20. Mirror symmetry of Abelian varieties and multi-theta functions, *J. Algebraic Geom.* 11 (2002), 393–512.
21. Floer homology and mirror symmetry. II. Minimal surfaces, geometric analysis and symplectic geometry (Baltimore, MD, 1999), 31–127, *Adv. Stud. Pure Math.*, 34, Math. Soc. Japan, Tokyo, 2002.
22. Multivalued Morse theory, asymptotic analysis and mirror symmetry. Graphs and patterns in mathematics and theoretical physics, 205–278, *Proc. Sympos. Pure Math.*, 73, Amer. Math. Soc., Providence, RI, 2005.
23. Lagrangian intersection Floer theory - anomaly and obstruction, preprint. (with Y.Oh, H.Ohta, K.Ono).
24. Gauge theory and topology, Springer Tokyo 1995 (A book in Japanese.)
25. Symplectic geometry Iwanami Shoten 1999 (A book in Japanese.)