

**Yoshiaki Itoh**  
Curriculum Vitae  
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Place of birth: Saitama-ken, Japan  
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Nationality: Japanese

University examination and doctorate:  
1968: Bachelor of Science, University of Tokyo (earth science)  
1970: Master of Science, Tokyo Institute of Technology (mathematics). "The information theoretic proof of Kac's theorem"  
1979: Doctor of Science, Tokyo Institute of Technology "Stochastic models for interacting populations"

Employment:  
Aug. 1972 - Sep. 1980, Researcher, The Institute of Statistical Mathematics  
Oct. 1980 - Mar. 1985, Senior Researcher, The Institute of Statistical Mathematics  
Apr. 1985 - Jan. 1988, Associate Professor, The Institute of Statistical Mathematics  
Feb. 1988 - Mar. 2007, Professor, The Institute of Statistical Mathematics  
Apr. 1988 - Mar 2007, Professor, Department of Statistical Science, Graduate University for Advanced Studies  
May 1996- Present, Member of the Adjunct Faculty, The Rockefeller University  
April 1998-March 2005, Director, Department of Interdisciplinary Statistics, The Institute of Statistical Mathematics

Recent stays abroad:  
May 2003, July 2004, September 2005, June 2006, September 2007, September 2008, September 2010, research in Laboratory of Population of The Rockefeller University  
September, October 2006, Department of Mathematics and Statistics, Queen's University (Canada)

Other activity:  
From April 1981, Associate Editor, Annals of the Institute of Statistical Mathematics

Memberships:  
American Mathematical Society  
Bernoulli Society for Mathematical Statistics and Probability  
The Crystallographical Society of Japan  
International Statistical Institute

The Mathematical Society of Japan  
The Physical Society of Japan  
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Languages:

Japanese (Mother tongue)  
English (good)

Publications:

- Itoh, Y. The Information Theoretic Proof of Kac's Theorem, Proceedings of the Japan Academy, 46, No.3 (1970) 283-286.
- Itoh, Y. Note on H-theorem for Kac model, Suuri Kagaku (Mathematical Sciences) No. 83 (1970) 15-20 (in Japanese).
- Itoh, Y. Boltzmann Equation on Some Algebraic Structure Concerning Struggle for Existence, Proceedings of the Japan Academy, 47 (1971) 854-858.
- Itoh, Y. On a Ruin Problem with Interaction, Annals of the Institute of Statistical Mathematics, 25, No.3 (1973) 635-641.
- Itoh, Y. Characterization of Normal Distribution by Means of Collision, Entropy and Time Reversal, RIMS Proceedings 223 (1974), Research Institute of Mathematical Sciences, Kyoto University, 28-41.
- Itoh, Y. and Ueda, S. The Model and Simulation of the Struggle for Existence, Proceedings of the Institute of Statistical Mathematics, 23, No.1 (1975) 93-104. (in Japanese with English summary)
- Itoh, Y. An H-Theorem for a System of Competing Species, Proceedings of the Japan Academy, 51, No.6 (1975) 374-379.
- Itoh, Y. Random Packing Model for Nomination of Candidates and its Application to Elections of the House of Representatives in Japan, Proceedings of the International Conference on Cybernetics and Society, IEEE (1978) 432-435.
- Itoh, Y. and Ueda, S. Note on Random Packing Models for an Analysis of Elections, Proceedings of the Institute of Statistical Mathematics, 25, No.1 (1978) 23-27 (in Japanese with English summary).
- Itoh, Y. and Ueda, S. A Random Packing Model for Elections, Annals of the Institute of Statistical Mathematics, 31 (1979) 157-167.
- Itoh, Y. Random Collision Models in Oriented Graphs, Journal of Applied Probability, 16 (1979) 36-44.
- Itoh, Y. On the Minimum of Gaps Generated by One-Dimensional Random Packing, Journal of Applied Probability, 17 (1980) 134-144.
- Itoh, Y. A Random Packing Model for Elections in Japan, Proceedings of the International Conference in Statistics, Tokyo (1980) 167-169 (North-Holland Publishing Company).
- Itoh, Y., Ueda, S. and Hasegawa, M. The Broken-Stick Model for Amino Acid Composition in Proteins, Journal of Molecular Evolution, 16 (1980) 69-72.
- Itoh, Y. Non-Associative Algebra and Lotka-Volterra Equation with Ternary Interaction, Nonlinear Analysis, 5, No.1 (1981) 53-56.
- Itoh, Y. and Ueda, S. A Note on Application of Stereo-pair Drawing, Proceedings of the Institute of Statistical Mathematics, 28, No.1 (1981) 55-59 (in Japanese with English summary).
- Itoh, Y. Representation of Random Collision Model by Nonassociative Algebras,

- Proceedings of the Institute of Statistical Mathematics, 30, No.2 (1983) 55-65 (in Japanese with English summary).
- Itoh, Y. and Ueda, S. On Packing Density by a Discrete Random Sequential Packing of Cubes in a Space of m-Dimension, Proceedings of the Institute of Statistical Mathematics, 31, No.1 (1983) 65-69 (in Japanese with English summary).
- Itoh, Y. Random Collision Model for Random Genetic Drift and Stochastic Difference Equation, Annals of the Institute of Statistical Mathematics, 36, B (1984) 353-362.
- Itoh, Y. Note on a Restricted Random Cutting of a Stick, Proceedings of the Institute of Statistical Mathematics, 33, No.1 (1985) 97-99 (in Japanese with English summary).
- Itoh, Y. Golay Code and Random Packing, Annals of the Institute of Statistical Mathematics, 38, No.3 B (1986) 583-588.
- Itoh, Y. Statistical Distribution on Symmetry Groups, Proceedings of the Institute of Statistical Mathematics, 34, No.1 (1986) 19-27 (in Japanese with English summary).
- Itoh, Y. and H. Solomon Random Sequential Coding by Hamming Distance, Journal of Applied Probability, 23, No.3 (1986) 688-695.
- Itoh, Y. and Jimbo M. A Stochastic Construction of Gray Code, RIMS Proceedings 607, 76-82, Research Institute of Mathematical Sciences, Kyoto University.
- Sibuya, M. and Itoh, Y. Random Sequential Bisection and its Associated Binary Tree, Annals of the Institute of Statistical Mathematics, 39, No.1 A (1987) 69-84.
- Itoh, Y. Integrals of a Lotka-Volterra System of Odd Number of Variables, Progress of Theoretical Physics, 78, No.3 (1987) 507-510.
- Itoh, Y. Toda Lattice and a Dynamical System on Competition, Proceedings of the Institute of Statistical Mathematics, 35, No.1 (1987) 73-80. (in Japanese with English summary)
- Itoh, Y. Integrals of a Lotka-Volterra System of Infinite Species, Progress of Theoretical Physics, 80 No.5 (1988) 749-751.
- Itoh, Y. An Application of The Convolution Inequality for the Fisher Information, Annals of the Institute of Statistical Mathematics, 41, No.1 (1989) 9-12.
- Itoh, Y. A Certain Configuration of Random Points on a Circle Associated with a Generalized Lotka-Volterra Equation, Journal of Applied Probability, 26 No.4 (1989) 898-900.
- Itoh, Y. and Matsumoto, T. Random-Generation Model for Statistical Distribution of Point Groups, Acta Crystallographica A47 (1991) 204-206.
- Tainaka, K. and Itoh, Y. Topological Phase-Transition in Biological Ecosystems, Europhysics Letters, 15 (1991) 399-404.
- Maruyama, K. and Itoh, Y. Stochastic Differential Equations for the Wright-Fisher Model, Proceedings of the Institute of Statistical Mathematics, 39, No.1 (1991) 47-52. (in Japanese with English summary)
- Ueda, S. and Itoh, Y. Clustering Tree of World Languages by the Similarity of Word Ordering Rule, Japanese Journal of Applied Statistics, 20, No.3 (1991) 155-166 (in Japanese).
- Komaki, F. and Itoh, Y. A Unified Model for Kakutani's Interval Splitting and Renyi's Random Packing, Advances in Applied Probability, 24 (1992) 502-505.
- Itoh, Y. Stochastic Model of an Integrable Nonlinear System, Journal of the Physical Society of Japan, 62, No.6 (1993) 1826-1828.
- Tainaka, K. and Itoh, Y. Glass Effect in a Prescribed Marriage System, Physics Letters A 187 (1994) 49-53.
- Itoh, Y. and Tainaka, K. Stochastic Limit Cycle with Power-Law Spectrum, Physics

- Letters A 189 (1994) 37-42.
- Okabe, Y., Mano, H. and Itoh, Y. Random Collision Model for Interacting Populations of Two Species and Fluctuation-Dissipation Theorem – the Law of Large Numbers and Central Limit Theorem, *Hokkaido Mathematical Journal*, 23, No.3 (1994) 507-522.
- Itoh, Y. and Cohen, J. E. Competitive Ternary Interactions and Relative Entropy of Solutions, *Journal of Physics A* 27 (1994) 6383-6393.
- Itoh, Y. Paper-Scissors-Stone Models of Nonlinear Integrable Systems, *Proceedings of the Institute of Statistical Mathematics*, 42, No.1 (1994) 131-145. (in Japanese with English summary)
- Tsunoda, T., Ueda, S. and Itoh, Y. Adpositions in Word-Order Typology, *Linguistics* 33 (1995) 741-761.
- Ueda, S. and Itoh, Y. The Classification of Languages by the Two Parameter Model for Word Ordering Rule, *Proceeding of the Institute of Mathematics*, 43, No.2 (1995) 341-365. (in Japanese with English summary)
- Tainaka, K. and Itoh, Y. Apparent Self-Organized Criticality, *Physics Letters A* 220 (1996) 58-62.
- Tainaka, K. and Itoh, Y. Glass Effect in Inbreeding-Avoidance Systems: Minimum Viable Population for Outbreeders, *Journal of the Physical Society of Japan*, 65 (1996) 3379-3385.
- Itoh, Y. Addendum to Stochastic Model of an Integrable Nonlinear System, *Journal of the Physical Society of Japan*, 65, No.12 (1996).
- Itoh, Y. Nonlinear integrable system and stochastic model, *Suuri Kagaku (Mathematical Sciences)* No. 405 (1997) 20-26 (in Japanese).
- Itoh, Y. and Sugimoto, M. Random Walk on Symmetry Groups and Statistical Distribution of Symmetry Groups, *Cooperative Research Report 98* (1997), 1-69, The Institute of Statistical Mathematics. (in Japanese).
- Itoh, Y. and Maehara, H. A Variation to the Ruin Problem, *Mathematica Japonica*, 47, No.1 (1998), 97-102.
- Fujiwara, M., Itoh, Y., Matsumoto, T., and Takeda, H. Statistical Distribution of Symmetry Groups for Inorganic Crystal Structure Database (ICSD). *Computer Science Monographs*, No.29 (1998), 1-92, The Institute of Statistical Mathematics.
- Itoh, Y., Mallows, C. and Shepp, L. Explicit Sufficient Invariants for an Interacting Particle System, *Journal of Applied Probability*. 35, No.3 (1998), 633-641.
- Itoh, Y. and Shepp, L. Parking Cars with Spin but no Length, *Journal of Statistical Physics* 97 (1999), 209-231.
- Itoh, Y., Maehara, H. and Tokushige, N. Oriented Graphs Generated by Random Points on a Circle, *Journal of Applied Probability* 37 (2000), 534-539.
- Itoh, Y. and Ueda, S. Observed Phase Changes and Random Sequential Packing Model for Election in Japan, *Physica D* 142 (2000), 29-40.
- Ueda, S. and Itoh, Y. Classification of Natural Languages by Word Ordering Rule, *Exploratory Data Analysis in Empirical Research* (2002), 180-187, Springer
- Fujiwara, M., Itoh, Y., Matsumoto, T., and Takeda, H. Statistical Distribution of Symmetry Groups for Inorganic Crystal Structure Database (ICSD) IV. *Cooperative Research Report 156* (2002), 1-437, The Institute of Statistical Mathematics.
- Itoh, Y. and Mahmoud, H. M. One sided variations of interval trees, *Journal of Applied Probability* 40 (2003), 654-670.
- Itoh, Y., Mahmoud, H. M. and Takahashi, D. A stochastic model for solitons, *Random Structures and Algorithms* 24 (2003), 51-64.

- Takahashi, H. and Itoh, Y. Majority orienting model for the oscillation of market price, *The European Physical Journal B* 37 (2004) 271-274.
- Itoh, Y. and Ueda, S. The Ising model for word ordering rule for natural languages, *Physica D* 198 (2004), 333-339.
- Itoh, Y. and Mahmoud, H. Age statistics in the Moran population model, *Statistics & Probability Letters* 74 (2005), 21-30.
- Ueda, S., Makino K. and Itoh, Y. Reconstructing family trees in ancient population from nuzi personal names, *Proceedings of the Institute of Statistical Mathematics* 53. (2005), 285-295 (in Japanese with English Summary).
- Itoh, Y. Mahmoud, H. and Smythe, R. Probabilistic analysis of maximal gap and total accumulated length in interval division, *Statistics & Probability Letters*, 76 (2006), 1356-1363.
- Tainaka, K., Itoh, Y., Yoshimura, J., and Asami, T. A geographical model of high species diversity, *Population Ecology*, 48 (2006), 113-119.
- Dutour-Sikirić, M., Itoh, Y. and Poyarkov, A. Cube packings, second moment and holes, *European Journal of Combinatorics*, 28 (2007), 715-725.
- Yamashita, T., Itoh, Y. The oscillation of stock price by majority orienting traders with investment position, *Physica A* 374 (2007), 764-772.
- Bogoyavlenskij, O. and Itoh, Y. and Yukawa, T.. Lotka–Volterra systems integrable in quadratures, *Journal of Mathematical Physics*. 49, (2008) 053501-053506.
- Itoh, Y. A combinatorial method for the vanishing of the Poisson brackets of an integrable Lotka–Volterra system, *Journal of Physics A: Math. Theor.* 42 (2009) 025201-025211.
- Dutour-Sikirić, M. and Itoh Y. Combinatorial cube packings in the cube and the torus, *European Journal of Combinatorics*, 31 (2010), 517-534.