

# Kenjiro Takazawa

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## Employment

- April 2016–Present: Associate Professor  
Department of Industrial and Systems Engineering,  
Faculty of Science and Engineering, Hosei University
- April 2010–March 2016: Assistant Professor  
Research Institute for Mathematical Sciences, Kyoto University
- April 2012–March 2014: JSPS Postdoctoral Fellow for Research Abroad  
Hosted by Professor András Sebő,  
L'équipe Optimisation Combinatoire du Laboratoire G-SCOP
- April 2007–March 2010: JSPS Research Fellow (DC1)

## Education

- March 2010: Doctor of Information Science and Technology, University of Tokyo  
Supervised by Kazuo Murota
- March 2007: Master of Information Science and Technology, University of Tokyo  
Supervised by Satoru Iwata and Kazuo Murota
- March 2005: Bachelor of Engineering, University of Tokyo  
Supervised by Kazuo Murota

## Papers

### Papers in Submission/Preparation

1. Kenjiro Takazawa:  
**Excluded  $t$ -factors in bipartite graphs: Unified framework for nonbipartite matchings, restricted 2-matchings, and matroids.**
2. Kazuo Murota and Kenjiro Takazawa:  
**Relationship of two formulations for shortest bibranchings.**
3. Satoru Fujishige, Tamás Király, Kazuhisa Makino, Kenjiro Takazawa, and Shin-ichi Tanigawa:  
**Minimizing submodular functions on diamonds via generalized fractional matroid matchings.**
4. Magnús M. Halldórsson, Toshimasa Ishii, Kazuhisa Makino, and Kenjiro Takazawa:  
**Posimodular function optimization.**

### Papers in Refereed Journals

1. Kenjiro Takazawa:  
**Finding a maximum 2-matching excluding prescribed cycles in bipartite graphs**, *Discrete Optimization*, to appear.
2. Yusuke Kobayashi and Kenjiro Takazawa:  
**Randomized strategies for cardinality robustness in the knapsack problem**, *Theoretical Computer Science*, to appear.
3. Kenjiro Takazawa:  
**Decomposition theorems for square-free 2-matchings in bipartite graphs**, *Discrete Applied Mathematics*, **233** (2017), 215–223.
4. Kenjiro Takazawa:  
**A 7/6-approximation algorithm for the minimum 2-edge connected subgraph problem in bipartite cubic graphs**, *Information Processing Letters*, **116** (2016), 550–553.
5. Kenjiro Takazawa:  
**Optimal matching forests and valuated delta-matroids**, *SIAM Journal on Discrete Mathematics*, **28** (2014), 445–467.
6. Sylvia Boyd, Satoru Iwata, and Kenjiro Takazawa:  
**Finding 2-factors closer to TSP tours in cubic graphs**, *SIAM Journal on Discrete Mathematics*, **27** (2013), 918–939.
7. Kenjiro Takazawa:  
**Shortest bibranchings and valuated matroid intersection**, *Japan Journal of Industrial and Applied Mathematics*, **29** (2012), 561–573.
8. Yusuke Kobayashi, Jácint Szabó, and Kenjiro Takazawa:  
**A proof of Cunningham’s conjecture on restricted subgraphs and jump systems**, *Journal of Combinatorial Theory*, **B102** (2012), 948–966.
9. Kenjiro Takazawa:  
**A weighted independent even factor algorithm**, *Mathematical Programming*, **132** (2012), 261–276.
10. Kenjiro Takazawa:  
**Even factors: Algorithms and structure**,  
In: Satoru Iwata (ed.), *Combinatorial Optimization and Discrete Algorithms*, *RIMS Kôkyûroku Bessatsu*, **B23** (2010), 233–252.
11. Kenjiro Takazawa:  
**A weighted  $K_{t,t}$ -free  $t$ -factor algorithm for bipartite graphs**, *Mathematics of Operations Research*, **34** (2009), 351–362.
12. Yusuke Kobayashi and Kenjiro Takazawa:  
**Even factors, jump systems, and discrete convexity**, *Journal of Combinatorial Theory*, **B99** (2009), 139–161.
13. Satoru Iwata and Kenjiro Takazawa:  
**The independent even factor problem**, *SIAM Journal on Discrete Mathematics*, **22** (2008), 1411–1427.

14. Kenjiro Takazawa:  
**A weighted even factor algorithm,**  
*Mathematical Programming*, **115** (2008), 223–237.

#### Papers in Refereed Conference Proceedings

1. Magnús M. Halldórsson, Toshimasa Ishii, Kazuhisa Makino, and Kenjiro Takazawa:  
**Posimodular function optimization,**  
*Proceedings of the 15th International Symposium on Algorithms and Data Structures (WADS 2017), Lecture Notes in Computer Science* **10389**, 437–448.
2. Kenjiro Takazawa:  
**Excluded  $t$ -factors in bipartite graphs:  
A unified framework for nonbipartite matchings and restricted 2-matchings,**  
*Proceedings of the 19th Conference on Integer Programming and Combinatorial Optimization (IPCO 2017), Lecture Notes in Computer Science* **10328**, 430–441.  
See also:  
Kenjiro Takazawa:  
**Excluded  $t$ -factors in bipartite graphs:  
A unified framework for nonbipartite matchings and restricted 2-matchings,**  
*Proceedings of the 10th Hungarian-Japanese Symposium on Discrete Mathematics and Its Applications (JH 2017)*, 2017, 483–492.
3. Kenjiro Takazawa:  
**Finding a maximum 2-matching excluding prescribed cycles in bipartite graphs,**  
*Proceedings of the 41st International Symposium on Mathematical Foundations of Computer Science (MFCS 2016), Leibniz International Proceedings in Informatics* **58** (2016), 87:1–87:14.
4. Yusuke Kobayashi and Kenjiro Takazawa:  
**Randomized strategies for cardinality robustness in the knapsack problem,**  
*Proceedings of the 13th Meeting on Analytic Algorithmics and Combinatorics (ANALCO 2016)*, 25–33.
5. Kenjiro Takazawa:  
**Decomposition theorems for square-free 2-matchings in bipartite graphs,**  
*Proceedings of the 41st International Workshop on Graph-Theoretic Concepts in Computer Science (WG 2015), Lecture Notes in Computer Science* **9224** (2016), 373–387.  
See also:  
Kenjiro Takazawa:  
**Structure theorems for square-free 2-matchings in bipartite graphs,**  
*Proceedings of the 9th Hungarian-Japanese Symposium on Discrete Mathematics and Its Applications (HJ 2015)*, 2015, 69–78.
6. Kenjiro Takazawa:  
**Optimal matching forests and valuated delta-matroids,**  
*Proceedings of the 15th Conference on Integer Programming and Combinatorial Optimization (IPCO 2011), Lecture Notes in Computer Science* **6655** (2011), 404–416.

7. Yusuke Kobayashi and Kenjiro Takazawa:  
**Square-free 2-matchings in bipartite graphs and jump systems,**  
*Proceedings of the 6th Japanese-Hungarian Symposium on Discrete Mathematics and Its Applications (JH 2009)*, 2009, 187–197.
8. Kenjiro Takazawa:  
**A weighted independent even factor algorithm,**  
*Proceedings of the 6th Japanese-Hungarian Symposium on Discrete Mathematics and Its Applications (JH 2009)*, 2009, 361–371.
9. Kenjiro Takazawa:  
**A weighted  $K_{t,t}$ -free  $t$ -factor algorithm for bipartite graphs,**  
*Proceedings of the 13th Conference on Integer Programming and Combinatorial Optimization (IPCO 2008)*, *Lecture Notes in Computer Science* **5035** (2008), 62–76.
10. Kenjiro Takazawa:  
**A weighted even factor algorithm,**  
*Proceedings of the 5th Hungarian-Japanese Symposium on Discrete Mathematics and Its Applications (HJ 2007)*, 2007, 43–52.
11. Satoru Iwata and Kenjiro Takazawa:  
**The independent even factor problem,**  
*Proceedings of the 18th ACM-SIAM Symposium on Discrete Algorithms (SODA 2007)*, 1171–1180.

## Preprints

1. Kenjiro Takazawa:  
**Excluded  $t$ -factors in bipartite graphs: Unified framework for nonbipartite matchings, restricted 2-matchings, and matroids,**  
arXiv:1708.00582, 2017.
2. Kazuo Murota and Kenjiro Takazawa:  
**Relationship of two formulations for shortest bibranchings,**  
arXiv:1706.02029, 2017.
3. Kenjiro Takazawa:  
**Approximation algorithms for the minimum 2-edge connected spanning subgraph problem and the graph-TSP in regular bipartite graphs via restricted 2-factors,**  
RIMS Preprint, RIMS-1826, Kyoto University, 2015.
4. Satoru Fujishige, Tamás Király, Kazuhisa Makino, Kenjiro Takazawa, and Shin-ichi Tanigawa:  
**Minimizing submodular functions on diamonds via generalized fractional matroid matching,**  
EGRES Technical Reports, TR-2014-14, Egerváry Research Group, 2014.  
See also: RIMS Preprint, RIMS-1812, Kyoto University, 2015.

## Theses

Ph.D. Thesis: **Combinatorial Algorithms for Generalized Matching Problems**,  
University of Tokyo, March 2010.

Supervisor: Professor Kazuo Murota

Master's Thesis: **A Unified Approach to Combinatorial Algorithms for Matchings  
and Matroids**,

University of Tokyo, March 2007.

Supervisors: Professor Kazuo Murota, Professor Satoru Iwata

## Conference Talks

1. Kenjiro Takazawa:  
**Excluded  $t$ -factors in bipartite graphs:  
A unified framework for nonbipartite matchings and restricted 2-matchings**,  
The 19th Conference on Integer Programming and Combinatorial Optimization  
(IPCO 2017), Waterloo, Canada, 2017.
2. Kenjiro Takazawa:  
**Excluded  $t$ -factors in bipartite graphs:  
A unified framework for nonbipartite matchings and restricted 2-matchings**,  
The 10th Japanese-Hungarian Symposium on Discrete Mathematics and Its  
Applications (JH 2017), Budapest, Hungary, 2017.
3. Kenjiro Takazawa:  
**Finding a maximum 2-matching excluding prescribed cycles in bipartite  
graphs**,  
The 41st International Symposium on Mathematical Foundations of Computer Science  
(MFCS 2016), Kraków, Poland, 2016.
4. Kenjiro Takazawa:  
**Decomposition theorems for square-free 2-matchings in bipartite graphs**,  
The 22nd International Symposium on Mathematical Programming (ISMP 2015),  
Pittsburgh, USA, 2015.
5. Kenjiro Takazawa:  
**Decomposition theorems for square-free 2-matchings in bipartite graphs**,  
The 41st International Workshop on Graph-Theoretic Concepts in Computer Science  
(WG 2015), Munich, Germany, 2015.
6. Kenjiro Takazawa:  
**Structure theorems for square-free 2-matchings in bipartite graphs**,  
The 9th Hungarian-Japanese Symposium on Discrete Mathematics and Its  
Applications (HJ 2015), Fukuoka, Japan, 2015.
7. Sylvia Boyd, Satoru Iwata, and Kenjiro Takazawa:  
**Finding 2-factors closer to TSP tours in cubic graphs**,  
The 18th Aussois Combinatorial Optimization Workshop, Aussois, France, 2014.
8. Kenjiro Takazawa:  
**Shortest bibranchings and valuated matroid intersection**,

Combinatorial Geometries: Matroids, Oriented Matroids and Applications,  
Marseille, France, 2013.

9. Kenjiro Takazawa:  
**Discrete convexity in network optimization: Matching forests and  
bibranchings**,  
Kyoto RIMS Workshop “Discrete Convexity and Optimization”,  
Kyoto, Japan, 2012. [Invited talk]
10. Sylvia Boyd, Satoru Iwata, and Kenjiro Takazawa:  
**Finding 2-factors closer to TSP tours in cubic graphs**,  
The 3rd Cargèse Workshop on Combinatorial Optimization, Corsica, France, 2012.
11. Sylvia Boyd, Satoru Iwata, and Kenjiro Takazawa:  
**Covering cuts in bridgeless cubic graphs**,  
The 21st International Symposium on Mathematical Programming (ISMP 2012),  
Berlin, Germany, 2012.
12. Kenjiro Takazawa:  
**Shortest bibranchings and valuated matroid intersection**,  
The First ETH-Japan Workshop on Science and Computing,  
Engelberg, Switzerland, 2012.
13. Kenjiro Takazawa:  
**Optimal matching forests and valuated delta-matroids**,  
The 15th Conference on Integer Programming and Combinatorial Optimization  
(IPCO 2011), New York, USA, 2011.
14. Kenjiro Takazawa:  
**Optimal matching forests and valuated delta-matroids**,  
Shonan Meeting: Graph Algorithm and Combinatorial Optimization,  
Shonan, Japan, 2011.
15. Kenjiro Takazawa:  
**A weighted independent even factor algorithm**,  
The 6th Japanese-Hungarian Symposium on Discrete Mathematics and Its  
Applications (JH 2009), Budapest, Hungary, 2009.
16. Kenjiro Takazawa:  
**Even factors: Algorithms and structure**,  
Kyoto RIMS Workshop on Combinatorial Optimization and Discrete Algorithms,  
Kyoto, Japan, 2008. [Invited talk]
17. Kenjiro Takazawa:  
**A weighted  $K_{t,t}$ -free  $t$ -factor algorithm for bipartite graphs**,  
The 13th Conference on Integer Programming and Combinatorial Optimization  
(IPCO 2008), Bertinoro, Italy, 2008.
18. Kenjiro Takazawa:  
**A weighted  $K_{t,t}$ -free  $t$ -factor algorithm for bipartite graphs**,  
The 1st AAAC Annual Meeting, Pokfulam, Hong Kong, 2008.

19. Kenjiro Takazawa:  
**A weighted even factor algorithm,**  
The 5th Hungarian-Japanese Symposium on Discrete Mathematics and Its Applications (HJ 2007), Sendai, Japan, 2007.
20. Satoru Iwata and Kenjiro Takazawa:  
**The independent even factor problem,**  
The 18th ACM-SIAM Symposium on Discrete Algorithms (SODA 2007),  
New Orleans, USA, 2007.
21. Satoru Iwata and Kenjiro Takazawa:  
**The independent even factor problem,**  
The 19th International Symposium on Mathematical Programming (ISMP 2006),  
Rio de Janeiro, Brazil, 2006.
22. Kenjiro Takazawa:  
**A weighted even factor algorithm,**  
The 37th Southeastern International Conference on Combinatorics, Graph Theory,  
and Computing, Florida, USA, 2006.

## Service to the Community

### Program Committee

- The 4th International Symposium on Combinatorial Optimization (ISCO 2016)

### Organizing Committee

- The Japanese Conference on Combinatorics and Its Applications 2018 (JCCA 2018)
- Computational Complexity Conference 2016 (CCC 2016) Satellite Kyoto Workshop
- The Japanese Conference on Combinatorics and Its Applications 2016 (JCCA 2016)
- The 18th Japan Conference on Discrete and Computational Geometry and Graphs (JCDCGG 2015)
- The 7th Hungarian-Japanese Symposium on Discrete Mathematics and Its Applications (HJ 2011)

### Referee

I referee an average of ten papers per year. I have refereed for the following journals and conferences:

- Algorithmica
- Combinatorica
- Computers & Operations Research
- Discrete Applied Mathematics
- Discrete Mathematics & Theoretical Computer Science
- Discrete Optimization
- Electronic Journal of Combinatorics
- Graphs and Combinatorics
- IEICE Transactions
- Information Processing Letters

- Japan Journal of Industrial and Applied Mathematics
  - Journal of Combinatorial Mathematics and Combinatorial Computing
  - Journal of the ACM
  - Journal of the Operations Research Society of Japan
  - JSIAM Letters
  - Kyungpook Mathematical Journal
  - Linear Algebra and Its Applications
  - Mathematical Programming
  - Mathematics of Operations Research
  - Operations Research Letters
  - Pacific Journal of Optimization
  - RIMS Kôkyûroku Bessatsu
  - SIAM Journal on Discrete Mathematics
- 
- International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)
  - International Colloquium on Automata, Languages and Programming (ICALP)
  - Conference on Integer Programming and Combinatorial Optimization (IPCO)
  - International Symposium on Algorithms and Computation (ISAAC)
  - International Symposium on Combinatorial Optimization (ISCO)
  - Latin American Theoretical Informatics Symposium (LATIN)
  - Annual Conference of the Society of Instrument and Control Engineers of Japan (SICE)
  - ACM-SIAM Symposium on Discrete Algorithms (SODA)
  - Algorithms and Data Structures Symposium (WADS)