

# YUAN-HSUN LO

## Mailing Address

School of Mathematical Sciences  
Rhine Campus, Xiamen University  
Siming Dist., Xiamen 361005  
Fujian Province, China

## Personal Information

Date of Birth: August 30, 1982  
Phone: (86) 13023995168  
(886) 934315830  
Email: yhlo0830@gmail.com  
yhlo@xmu.edu.cn

**INTERESTS** Enumerative Combinatorics, Algebraic Combinatorics, Coding Theory, Graph Theory, Design Theory, Protocol Sequences

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## EXPERIENCE Assistant Professor

• Sch. Mathematical Sciences, Xiamen University, China 09/2015 – Present

### Postdoctoral

- Dept. Math., National Taiwan Normal University, Taiwan 08/2013 – 07/2015
- Dept. Appl. Math., National University of Kaohsiung, Taiwan 08/2012 – 07/2013
- Dept. Appl. Math., National Chiao Tung University, Taiwan 08/2011 – 07/2012

### Adjunct Instructor

- Div. Preparatory Programs for Overseas Chinese Students 09/2014 – 01/2015  
National Taiwan Normal University, Taiwan
- Dept. Appl. Math., National Chiao Tung University, Taiwan 06/2008 – 01/2009

### Visiting Scholar

- Dept. Inf. Engineering, The Chinese University of Hong Kong 01/2018 – 02/2018  
07/2017 – 08/2017 07/2016 – 08/2016 01/2016 – 02/2016  
06/2015 – 08/2015 01/2015 – 02/2015 05/2014 – 06/2014  
09/2013 – 11/2013 02/2013 – 03/2013
  - Inst. Network Coding, The Chinese University of Hong Kong 05/2012 – 06/2012
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**EDUCATION** **Ph.D.**, Dept. Appl. Math., National Chiao Tung University, Taiwan 07/2010  
• Thesis: Multicolored Subgraphs in an Edge-colored Graph  
**M.S.**, Dept. Appl. Math., National Chiao Tung University, Taiwan 06/2006  
• Thesis: Multicolored Parallelisms of Isomorphic Graphs  
**B.S.**, Dept. Appl. Math., National Chiao Tung University, Taiwan 06/2004

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**HONORS** • The Phi Tau Phi scholastic honor 2010  
• Excellent thesis award, Annual Taiwanese Combinatorics conference 2006  
for Young scholars

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**RESEARCH  
FUNDING**

- [PI] National Natural Science Foundation of China (Youth) 01/2017 – 12/2019
  - [PI] National Science Foundation of Fujian Province, China, 04/2016 – 03/2019
  - [PI] Fundamental Research Funds for the Central Universities, 01/2016 – 12/2016  
China
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**PUBLICA-  
TIONS****Journal Papers**

1. Y. Zhang, F. Guan, **Y.-H. Lo**, F. Shu and J. Li, *Optimal multichannel slotted ALOHA for deadline-constrained unicast systems*, **IEEE Systems Journal**, accepted for publication.
2. Y. Zhang, M. Zhang, **Y.-H. Lo** and W. S. Wong, *Protocol sequences with carrier sensing for wireless sensor networks*, **IEEE Internet of Things Journal**, on-line published: 10.1109/JIOT.2018.2807403.
3. Y. Zhang, **Y.-H. Lo** and W. S. Wong, *On the channel hopping sequences with full rendezvous diversity for cognitive radio*, **IEEE Wireless Communication Letters**, on-line published: 10.1109/LWC.2018.2797904.
4. Y. Chen, **Y.-H. Lo**, K. W. Shum, W. S. Wong and Y. Zhang, *CRT sequences with applications to collision channels allowing successive interference cancellation*, **IEEE Transactions on Information Theory**, on-line published: 10.1109/TIT.2018.2801888.
5. Y. Zhang, **Y.-H. Lo**, K. W. Shum and W. S. Wong, *New CRT sequence sets for a collision channel without feedback*, **Wireless Networks**, on-line published: 10.1007/s11276-017-1623-x. (Corresponding author)
6. **Y.-H. Lo**, Y. Zhang, Y. Chen, H. L. Fu and W. S. Wong, *The global packing number of a fat-tree network*, **IEEE Transactions on Information Theory**, 63(8) (2017) 5327–5335. (Corresponding author)
7. M. Cheng, H.-L. Fu, J. Jiang, **Y.-H. Lo** and Y. Miao, *Codes with the identifiable parent property for multimedia fingerprinting*, **Designs Codes and Cryptography**, 83 (2017) 71–82.
8. Y. Zhang, **Y.-H. Lo** and W. S. Wong, *Completely irrepressible sequences for multiple-packet reception*, **IEEE Transactions on Vehicular Technology**, 65(2016) 6803–6809.
9. Y. Zhang, **Y.-H. Lo** and W. S. Wong, *Optimal strongly conflict-avoiding codes of even length and weight three*, **Designs Codes and Cryptography**, 79(2016) 367–382. (Corresponding author)
10. Y. Zhang, **Y.-H. Lo**, W. S. Wong and F. Shu, *Protocol sequences for multiple-packet reception channel without feedback*, **IEEE Transactions on Communications**, 64(2016) 1687–1698.
11. **Y.-H. Lo**, W. S. Wong and H.-L. Fu, *Partially user-irrepressible sequence sets and conflict-avoiding codes*, **Designs Codes and Cryptography**, 78(2016) 679–691. (Corresponding author)

12. **Y.-H. Lo**, H.-L. Fu and Y.-H. Lin, *Weighted maximum matchings and optimal equi-difference conflict-avoiding codes*, ***Designs Codes and Cryptography***, 76(2015) 361–372. (Corresponding author)
13. H.-L. Fu and **Y.-H. Lo**, *Multicolored isomorphic spanning trees in complete graphs*, ***Ars Combinatoria***, 122(2015) 423–430.
14. S.-P. Eu, **Y.-H. Lo** and T.-L. Wong, *The sorting index on colored permutations and even-signed permutations*, ***Advances in Applied Mathematics***, 68(2015) 18–50. (Corresponding author)
15. M. Cheng, H.-L. Fu, J. Jiang, **Y.-H. Lo** and Y. Miao, *New bounds on  $\bar{2}$ -separable codes of length 2*, ***Designs Codes and Cryptography***, 74(2015) 31–40.
16. H. Chang, S.-P. Eu and **Y.-H. Lo**, *Signed imbalances of snakes and valley signed permutations*, ***Advances in Applied Mathematics***, 59(2014) 26–47. (Corresponding author) (Hottest paper no. 5 in Advances in Applied Mathematics, July – Sep. 2014)
17. H.-L. Fu, **Y.-H. Lo** and K. W. Shum, *Optimal conflict-avoiding codes of odd length and weight three*, ***Designs Codes and Cryptography***, 72(2014) 289–309. (Corresponding author)
18. H.-L. Fu, **Y.-H. Lo** and R.-Y. Pei, *Edge-colorings of  $K_{m,n}$  which forbid multicolored cycles*, ***Utilitas Mathematica***, 90 (2013) 77–84.
19. H.-L. Fu and **Y.-H. Lo**, *Multicolored parallelisms of Hamiltonian cycles*, ***Discrete Mathematics***, 309 (2009) 4871–4876.
20. S. Akbari, A. Alipour, H.-L. Fu and **Y.-H. Lo**, *Multicolored parallelisms of isomorphic spanning trees*, ***SIAM Journal on Discrete Mathematics***, 20 (2006) 564–567.

#### Conference Papers

1. K. W. Shum, Y. Chen, **Y.-H. Lo**, W. S. Wong and Y. Zhang, *Protocol-sequence-based media-access control with successive interference cancellation*, ***International Conference on Wireless Communications and Signal Processing***, Nanjing, China, (2017).
2. Y. Zhang, Y. Chen, **Y.-H. Lo**, and W. S. Wong, *The zero-error capacity of a collision channel with successive interference cancellation*, ***IEEE International Symposium on Information Theory***, Aachen, Germany, (2017) 1653–1657.
3. Y. Zhang, Y.-H. Lo, S. Wang and W. S. Wong, *A hybrid wavelength reservation scheme for large-scale optical networks*, ***Wireless and Optical Communication Conference***, Chengdu, China, May (2016).
4. Y. Zhang, **Y.-H. Lo**, F. Shu and W. S. Wong, *Protocol sequences for multiple-packet reception: throughput invariance and user irrepressibility*, ***IEEE International Symposium on Information Theory***, Hawaii, USA, (2014) 1568–1572.

#### Submitted Papers

1. H. Chang, S.-P. Eu and **Y.-H. Lo**, *Character, length and signed Mahonian on  $G(r, 1, n)$* , arXiv:1311.5173. (Corresponding author)
2. H.-L. Fu, **Y.-H. Lo**, W. S. Wong and Y. Zhang, *The undirected optical indices of complete  $m$ -ary trees*, arXiv:1707.09745. (Corresponding author)
3. H.-L. Fu, **Y.-H. Lo**, K. E. Perry and C. Rodger, *On the number of rainbow spanning trees in edge-colored complete graphs*, arXiv:1605.04501.
4. Y. Zhang, Y. Chen, **Y.-H. Lo** and W. S. Wong, *Achieving zero-error rate 1 for the collision channel without feedback*, arXiv:1609.05448.
5. Y. Zhang, **Y.-H. Lo**, F. Shu and J. Li, *Optimal slotted ALOHA under delivery deadline constraint for multiple-packet reception*.

### Preprints

1. S.-P. Eu, **Y.-H. Lo** and T.-L. Wong, *Sorting index on multisets and quotients of parabolic subgroups*.
2. Y. Zhang, **Y.-H. Lo** and W. S. Wong, *Throughput-invariant sequences with deterministic frequency-hopping for ad hoc networks*.
3. Y. Zhang, **Y.-H. Lo** and W. S. Wong, *Protocol sequences for multiple access with physical-layer network coding*.

## ACADEMIC ACTIVITIES

### Invited Talks

1. 2017.06.16: *Conflict-avoiding codes and user-irrepressible protocol sequence sets*, The Algebraic Combinatorics frontiers symposium. (University of Electronic Science and Technology of China, China)
2. 2016.03.06: *The global packing number for an optical network*, The 4th Japan-Taiwan conference on combinatorics and its applications. (Gifu University, Japan)
3. 2015.04.09: *Optimal (equi-difference) conflict-avoiding codes and weighted maximum matchings*, The international conference on Coding Theory, Cryptography and related topics. (Yuangzhou University, China)
4. 2014.03.23: *On protocol sequences with multiple-packet reception*, The 3rd Taiwan-Japan conference on combinatorics and its applications. (National Chiayi University, Taiwan)
5. 2014.02.28: *Joint equidistributions on classical Coxeter groups*, The 5th Taiwan-Japan joint workshop for young scholars in Applied Mathematics. (National Tsing Hua University, Taiwan)

### Contributed Talks

1. 2017.12.10: *The optical index for a fat-tree network*, Annual meeting of Taiwan mathematical society. (National Chiayi University, Taiwan)
2. 2017.11.04: *On the optical and forwarding indices of graphs*, The 9th Cross-strait Conference on Graph Theory and Combinatorics. (Fuzhou University, China)

3. 2016.12.25: *Conflict-avoiding codes and user-irrepressible protocol sequence sets*, The 2016 Frontiers Conference on Combinatorics and related topics. (Xiamen University, China)
4. 2016.08.15: *Some new signed Mahonian polynomials*, The 7th China National Conference on Combinatorics and Graph Theory. (Hebei Normal University, China)
5. 2014.12.07: *The sorting index on colored permutations and even-signed permutations*, Annual meeting of Taiwan mathematical society. (National Cheng Kung University, Taiwan)
6. 2014.11.08: *The sorting index on colored permutations and even-signed permutations with Ferrers shape*, The 6th China National Conference on Combinatorics and Graph Theory. (South China Normal University, China)
7. 2013.12.07: *Joint equidistributions on classical Coxeter groups*, Annual meeting of Taiwan mathematical society. (National Sun Yat-sen University, Taiwan)
8. 2012.12.08: *Snakes, Lattice paths and the Springer numbers*, Annual meeting of Taiwan mathematical society. (National Chia Tung University, Taiwan)
9. 2011.12.12: *Optimal conflict-avoiding codes of odd length and weight three*, Annual meeting of Taiwan mathematical society. (Chung Yuan Christian University, Taiwan)
10. 2010.08.07: *Multicolored subgraphs in an edge-colored graph*, Annual Taiwanese Combinatorics conference for Young scholars. (Academia Sinica, Taiwan)
11. 2006.08.11: *Multicolored parallelisms of isomorphic graphs*, Annual Taiwanese Combinatorics conference for Young scholars. (China University of Technology, Taiwan)

### **Other Academic Talks**

1. 2017.12.08: *The optical index and load balancing scheme for data center networks*. (National Chung Hsing University, Taiwan)
2. 2017.06.20: *The sorting index on complex reflection groups*. (Chongqing University, China)
3. 2017.06.03: *The sorting index on Coxeter groups and complex reflection groups*. (Jimei University, China)
4. 2015.03.13: *The global packing numbers*. (Academia Sinica, Taiwan)
5. 2015.03.06: *The sorting index on Coxeter groups and complex reflection groups*. (National University of Kaohsiung, Taiwan)
6. 2014.10.17: *The sorting index on colored permutations and even-signed permutations*. (Academia Sinica, Taiwan)
7. 2014.04.11: *On protocol sequences with multiple-packet reception: throughput invariance and user irrepressibility*. (Academia Sinica, Taiwan)

8. 2014.03.18: *Partially conflict-avoiding codes and their combinatorial structures*, Department of Mathematics. (Tamkang University, Taiwan)
9. 2013.12.13: *Conflict-avoiding codes and graph-packing problems*. (Academia Sinica, Taiwan)
10. 2013.12.13: *Joint equidistributions on classical Coxeter groups*. (Academia Sinica, Taiwan)
11. 2012.11.29: *Sign imbalances of Snakes*. (National Sun Yat-sen University, Taiwan)
12. 2012.11.16: *Enumeration and sign imbalances of Snakes*. (Academia Sinica, Taiwan)
13. 2012.10.24: *Optimal conflict-avoiding codes of odd length and weight three*. (National University of Kaohsiung, Taiwan)
14. 2012.06.15: *User-irrepressible sequences*, Institute of Mathematics. (Academia Sinica, Taiwan)
15. 2012.05.30: *Optimal conflict-avoiding codes*, Institute of Network Coding. (The Chinese University of Hong Kong, Hong Kong)
16. 2011.12.12: *Multicolored subgraphs in an edge-colored graph*. (National Chiao Tung University, Taiwan)

**REFEREE**

1. Advances in Applied Mathematics
2. Taiwanese Journal of Mathematics
3. Southeast Asian Bulletin of Mathematics