



Yuan-Hsun Lo 羅元勳

Professor, Department of Applied Mathematics



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Combinatorics Laboratory

Education

Combinatorics
Communication Networks

Ph. D., Applied Mathematics, National Chiao Tung University, R.O.C.(Taiwan)

Publications

1.1 Journal Papers (In recent 5 years)

- 1.1.1 Y. Zhang, Y. Zhu, Y. Zhu, Y.-H. Lo, T.-L. Wong, and K. Xu*, improving age of information for frame slotted ALOHA under multiple-packet reception, *IEEE Transactions on Communications*, Early Access, Dec. 2025.
- 1.1.2 C. S. Chen, W. S. Wong, Y.-H. Lo*, and T.-L. Wong, Multiset combinatorial Gray codes with application to proximity sensor networks, *IEEE Transactions on Information Theory*, Early Access, Dec. 2025.
- 1.1.3 S.-P. Eu, T.-S. Fu*, and Y.-H. Lo, Bijective enumeration and sign-imbalance for permutation depth and excedances, *Journal of Combinatorics*, Accepted for Publication, Feb. 2025.
- 1.1.4 Y. Zhu, Y. Zhu, A. Gong, Y. Lin, Y.-H. Lo, and Y. Zhang*, Age-gain-dependent slotted ALOHA for event-driven periodic updating, *IEEE Transactions on Communications*, vol. 73, no. 8, pp. 5774-5787, Aug. 2025.
- 1.1.5 Y.-H. Lo*, T.-L. Wong, K. Xu, and Y. Zhang, Optimal constant-weight and mixed-weight conflict-avoiding codes, *IEEE Transactions on Information Theory*, vol. 71, no. 3, pp. 2257-2270, Mar. 2025.
- 1.1.6 Y.-H. Lo*, H.-L. Fu, Y. Zhang, and W. S. Wong, The undirected optical indices of trees, *Journal of Combinatorial Optimization*, vol. 49, #22, Jan. 2025.
- 1.1.7 Y.-H. Lo, K. W. Shum*, W. S. Wong and Y. Zhang, Corrections to "Multichannel conflict-avoiding codes of weights three and four", *IEEE Transactions on Information Theory*, vol. 70, no. 8, pp. 6118-6120, Aug. 2024.
- 1.1.8 A. Gong*, Y.-H. Lo, Y. Lin, and Y. Zhang, Dynamic random access without observation under deadline-constrained periodic traffic, *IEEE Transactions on Vehicular Technology*, vol. 73, no. 1, pp. 1503-1508, Jan. 2024.

- 1.1.9 Y. Zhang*, A. Gon, L. Deng, Y.-H. Lo, Y. Lin, and J. Li, Achieving maximum urgency-dependent throughput in random access, *IEEE Transactions on Communications*, vol. 71, no. 11, pp. 6435-6450, Nov. 2023.
- 1.1.10 F. Liu*, W. S. Wong, Y.-H. Lo, Y. Zhang, C. S. Chen, and G. Xing, Age of information for periodic status updates under sequence based scheduling, *IEEE Transactions on Communications*, vol. 71, no. 10, pp. 5963-5978, Oct. 2023.
- 1.1.11 S.-P. Eu, T.-S. Fu, H.-H. Lai, Y.-H. Lo*, Gamma-positivity for a refinement of median Genocchi numbers, *Electronic Journal of Combinatorics*, 29(2) (2022) #2.15.
- 1.1.12 Y.-P. Chen*, C.-H. Huang, Y.-H. Lo, Y.-Y. Chen and F. Lai, Combining attention with spectrum to handle missing values on time series data without imputation, *Information Sciences*, 609 (2022) 1271-1287.
- 1.1.13 S.-P. Eu, T.-S. Fu, Y.-H. Lo*, Signed Mahonian on parabolic quotients of colored permutation groups, *Advances in Applied Mathematics*, 132 (2022) 102269.
- 1.1.14 Y.-H. Lo, K. W. Shum*, W. S. Wong, Y. Zhang, Multichannel conflict-avoiding codes of weights three and four, *IEEE Transactions on Information Theory*, 67(6) (2021) 3557-3568.
- 1.1.15 H. Chang, S.-P. Eu, S. Fu, Z. Lin, Y.-H. Lo*, Signed Mahonian polynomials for major and sorting indices, *Journal of Algebraic Combinatorics*, 53 (2021) 201-226.
- 1.1.16 Y.-P. Chen*, Y.-H. Lo, F. Lai, C.-H. Huang, Disease concept-embedding based on the self-supervised method for medical experience extractor of electronic health records and disease retrieval: algorithm development and validation study, *Journal of Medical Internet Research*, 23(1) (2021) e25113.
- 1.1.17 S.-P. Eu, Z. Lin, Y.-H. Lo*, Signed Euler-Mahonian identities, *European Journal of Combinatorics*, 91 (2021) 103209.
- 1.1.18 Y.-H. Lo*, H.-L. Fu, W. S. Wong, Y. Zhang, The undirected optical indices of complete m-ary trees, *Discrete Applied Mathematics*, 285 (2020) 173-181.
- 1.1.19 Y. Zhang*, Y. Chen, Y.-H. Lo, W. S. Wong, Achieving zero-packet-loss throughput 1 for a collision channel without feedback and with arbitrary time offsets, *IEEE Transactions on Information Theory*, 66(4) (2020) 2269-2279.
- 1.2 Conference Papers (In recent 5 years)
 1. 2. 1 Y. Zheng, F. Liu, Y.-H. Lo*, T.-L. Wong, K. Xu, and Y. Zhang, Protocol sequences for age of information under multiple-packet reception, in *IEEE International Symposium on Information Theory*, Athens, Greece, Jul. 2024, pp. 969-974.
 1. 2. 2 Y. Zhang, T.-L. Wong, K. Xu, and Y.-H. Lo*, Mixed-weight conflict-avoiding codes, in *IEEE International Symposium on Information Theory*, Athens, Greece, Jul. 2024, pp. 1119-1124.
 1. 2. 3 Z. Xue, A. Gong*, Y.-H. Lo, S. Tian, and Y. Zhang, Deadline-constrained opportunistic spectrum access with spectrum handoff, in *IEEE Global Communications Conference*, Kuala Lumpur, Malaysia, Dec, 2023.
 1. 2. 4 Y.-H. Lo*, T.-L. Wong, Y. Zhang, Y.-C. Wang, and K. Xu, Deterministic grant-free access based on the Chinese Remainder Theorem, in *IEEE International Conference on Communications*, Rome, Italy, May 2023, pp. 4767-4772.

2.1 MOST

- 2.1.1 The study on the joint-distributions of statistics over permutations and the study on the Hamming cross-correlation functions of multivariate protocol sequences. (MOST 108-2115-M-153-004-MY2; Execution duration: 2019/10/01 ~ 2021/07/31) [PI]
- 2.1.2 The study on the permutation statistics over complex reflection groups and the study on the combinatorial objects of protocol sequences. (MOST 110-2115-M-153-004-MY2; Execution duration: 2021/08/01 ~ 2023/07/31) [PI]
- 2.1.3 On the study of permutation statistics. (NSTC 112-2115-M-153-004-MY2; Execution duration: 2023/08/01 ~ 2025/07/31) [PI]
- 2.1.4 The applications of combinatorics on wireless communications. (NSTC 114-2628-M-001-MY3; Execution duration: 2025/08/01 ~ 2028/07/31) [PI]

2.2 MOE

2.3 Others

- 2.3.1 Combinatorics and its applications: the study on (1) statistics over permutation groups and (2) Hamming cross-correlations of protocol sequences. (National Natural Science Foundation NSF 11601454; Execution duration: 2017/01/01 ~ 2019/07/31) [PI]

Relevant Experience

3.1 Academic Experience

3.1.1 Professor

3.1.1.1 Department of Applied Mathematics, National Pingtung University, R.O.C.(Taiwan).
(2024/02/01 ~ Present)

3.1.2 Associate Professor

3.1.2.1 Department of Applied Mathematics, National Pingtung University, R.O.C.(Taiwan).
(2020/08/01 ~ 2024/1/31)

3.1.2.2 School of Mathematical Sciences, Xiamen University, China. (2017/11/01 ~
2019/07/31)

3.1.3 Assistant Professor

3.1.3.1 Department of Applied Mathematics, National Pingtung University, R.O.C.(Taiwan).
(2019/08/01 ~ 2020/07/31)

3.1.3.2 School of Mathematical Sciences, Xiamen University, China. (2015/09/01 ~
2017/10/31)

3.1.4 Postdoctoral.

3.1.4.1 Department of Mathematics, National Taiwan Normal University, R.O.C.(Taiwan).
(2013/08/01 ~ 2015/07/31)

3.1.4.2 Department of Applied Mathematics, National University of Kaohsiung,
R.O.C.(Taiwan). (2012/08/01 ~ 2013/07/31)

3.1.4.3 Department of Applied Mathematics, National Chiao Tung University, R.O.C.(Taiwan).
(2011/08/01 ~ 2012/07/31)

3.2 Teaching Experience

3.2.1 Undergraduate

3.2.1.1 Calculus (Every semester since Fall 2019)

3.2.1.2 Discrete Mathematics (Fall 2024, Fall 2025)

3.2.1.3 Algorithms (Spring 2026, Spring 2024, Spring 2022, Spring 2021, Fall 2019)

3.2.1.4 Coding Theory (Spring 2025)

3.2.1.5 Combinatorial Designs (Spring 2023)

3.2.1.6 Foundations of Mathematics (Fall 2021, Fall 2020)

3.2.2 Graduate

3.2.2.1 Topics of Applied Mathematics (EMI) (Fall 2024, Fall 2023, Fall 2019)

3.2.2.2 Topics of Combinatorial Mathematics (EMI) (Fall 2022, Fall 2021, Fall 2020)

3.2.2.3 Mathematical Writing (EMI) (Spring 2023)

3.3 Others