

Curriculum Vitae -- Yu Sing (Sean) HON (韓汝星)

Academic Qualifications

DPhil in Mathematics, University of Oxford, 2018

MPhil in Mathematics, Hong Kong University of Science and Technology, 2014

BSc in Mathematics, Hong Kong University of Science and Technology, 2012

Previous Academic Position

Research Fellow, Department of Mathematics and Department of Civil and Environmental Engineering, National University of Singapore, 2019-2020

Present Academic Position

Assistant Professor, Department of Mathematics, Hong Kong Baptist University, 2020-Now

Previous Relevant Research Work/Research Interests

Preconditioning for Toeplitz-like systems, numerical methods for evolutionary PDE problems, and data science (<https://sites.google.com/view/hkbu-seanyshon>)

Publication Records

Five most representative publications in recent five years

1. C. Li and **S. Hon**, Multilevel Tau preconditioners for symmetrized multilevel Toeplitz systems with applications to solving space fractional diffusion equations. *SIAM J. Matrix Anal. Appl.*, 46 (1): 487-508, 2025.
2. P. Y. Fung and **S. Hon**, Block ω -circulant preconditioners for parabolic optimal control problems. *SIAM J. Matrix Anal. Appl.*, 45 (4): 2263-2286, 2024.
3. C. Li, X.-L. Lin, **S. Hon**, and S.-L. Wu, A preconditioned MINRES method for block lower triangular Toeplitz systems. *J. Sci. Comput.*, 100 (63), 2024.
4. X.-L. Lin, J. Dong, and **S. Hon**, A single-sided all-at-once preconditioning for linear system from a non-local evolutionary equation with weakly singular kernels. *Comput. Math. Appl.*, 169:1-16, 2024.
5. **S. Hon**, J. Dong, and S. Serra-Capizzano, A preconditioned MINRES method for optimal control of wave equations and its asymptotic spectral distribution theory, *SIAM J. Matrix Anal. Appl.*, 44 (4), 1477-1509, 2023.

Five representative publications beyond the recent five-year period

1. P. Ferrari, I. Furci, **S. Hon**, M. Ayman Mursaleen, and S. Serra-Capizzano, The eigenvalue distribution of special 2-by-2 block matrix sequences, with applications to the case of symmetrized Toeplitz structures. *SIAM J. Matrix Anal. Appl.*, 40(3), 1066-1086, 2019.
2. **S. Hon**, Optimal preconditioners for systems defined by functions of Toeplitz matrices, *Linear Algebra and its Applications*, 548:148-171, 2018.
3. **S. Hon** and A. Wathen, Circulant preconditioners for analytic functions of Toeplitz matrices, *Numerical Algorithms*, 79:1211-1230, 2018.
4. E. McDonald, **S. Hon**, J. Pestana, and A. Wathen. Preconditioning for nonsymmetry and time-dependence. *Domain Decomposition Methods in Science and Engineering XXIII*, Lect. Notes Comput. Sci., 116:81-91, Springer, Cham, 2017.
5. **S. Y. Hon**, S. Leung, and H. Zhao. A cell based particle method for modeling dynamic interfaces. *J. Comput. Phys.*, 272:279-306, 2014.

Others

Awards and honours (selected)

1. Research Excellence Paper Award, Hong Kong Baptist University, 2023
2. Early Career Award, Hong Kong University Grants Committee, 2021
3. Student Travel Award, International Conference on Preconditioning Techniques for Scientific and Industrial Applications (Preconditioning Conference), 2019
4. The 7th BGCE Best Student Paper Prize (Finalist), SIAM Conference on Computational Science and Engineering (SIAM-CSE), 2019
5. ABTA Doctoral Researcher Award (Honourable Mention Award), Association of British Turkish Academics, 2018
6. Student Travel Award, SIAM Conference on Applied Linear Algebra (ALA), 2018
7. University of Oxford Croucher Scholarship, the Croucher Foundation and University of Oxford, 2014-2017

Invited talks at international conferences/institutes (selected)

1. The International Workshop on Structured Matrix and Image Processing in Honor of Shing-Tung Yau's 75th Birthday, Nanjing, 2024 (*Invited as **Speaker.***)
2. The International Conference on Scientific Computation and Differential Equations, Singapore, 2024 (*Invited as **Speaker** for a minisymposium.*)
3. The 17th SIAM East Asian Section Conference, Macau, 2024 (*Served as **Organiser** for a minisymposium*)
4. SIAM Conference on Applied Linear Algebra (LA24), Paris, 2024 (*Invited as **Speaker.***)
5. Inaugural Hong Kong Laureate Forum (HKLF), Hong Kong, 2023 (*Selected to be one of the 200 selected **Young Scientist Participant** of the Forum from around the world.*)
6. The 10th International Congress on Industrial and Applied Mathematics, Tokyo, 2023 (*Invited as **Speaker** and served as **Organiser** for a minisymposium.*)
7. The 29th Biennial Numerical Analysis Conference, United Kingdom, 2023 (*Invited as **Speaker** and served as **Organiser** for a minisymposium.*)
8. “Science Exposition” and “Exploring New Horizons” and “Masterminds, Masterclasses” and “Tomorrow’s Scientists Exploration Camp”, the Council of HKLF, Hong Kong, 2021 (*Invited to be **Moderator** and **Guest Speaker** to showcase my research for promoting research and development and nurturing young talents in Hong Kong; Served as **Judging Panellist** for selecting young scientists to join HKLF.*)
<https://hklaureateforum.org/en/newsletter-Jan-2021-issue-7>
9. HKBU Mathematics Conference for Faculty of Science 60th Anniversary and HKBU Virtual Conference on Mathematics, Statistics and Data Science, 2021 (*Served as **Conference Organiser** and **Coordinator***)

Academic service

1. **Associate Editor**, International Journal of Computer Mathematics, Taylor & Francis, 2024–Now
2. **President**, Oxford University Hong Kong Scholars Association, 2016-2017

Students supervised at Department of Mathematics, Hong Kong Baptist University

PhD: Rosita L. Sormani (2021-2025), Jiamei Dong (2021-Now), Congcong Li (2022-Now)
MPhil: Wai Yan (2022-Now)