

## LOH Huanqian

Centre for Quantum Technologies and Department of Physics  
National University of Singapore  
3 Science Drive 2, Room S14-03-07, Singapore 117543

Phone: +65-6601 6193  
Email: [phylohh@nus.edu.sg](mailto:phylohh@nus.edu.sg)  
<https://lohlab.quantumlah.org>

### ACADEMIC EXPERIENCE

President's Assistant Professor, Department of Physics and Principal Investigator, Centre for Quantum Technologies, National University of Singapore	2017-Present
Postdoctoral research fellow, Centre for Quantum Technologies, National University of Singapore and Massachusetts Institute of Technology (Group of Martin Zwierlein)	2015-2017
Postdoctoral research fellow, Centre for Quantum Technologies, National University of Singapore (Group of Dzmitry Matsukevich)	2013-2014

### EDUCATION

Ph.D. Physics, University of Colorado at Boulder Thesis: Search for an Electron Electric Dipole Moment with Trapped Molecular Ions Advisor: Eric Cornell	2013
S.B. Physics, Massachusetts Institute of Technology Thesis: Applications of Correlated Photon Pairs: Sub-Shot Noise Interferometry and Entanglement Advisor: Vladan Vuletić	2006


### SELECTED FELLOWSHIPS, AWARDS, AND HONORS

L'Oreal-UNESCO International Rising Talent Top 15 global awardees selected from 260 national and regional fellows	2020
World Economic Forum Young Scientist Top 21 global awardees under age 40	2019
World Economic Forum Global Future Council on Quantum Computing, Invited Member	2019-2020
L'Oréal-Singapore For Women In Science National Fellowship	2018
Singapore National Research Foundation Fellowship Five year fellowship, total award amount SGD\$2.9 million	2018
MIT Rising Star in Physics	2016
MIT Pappalardo Postdoctoral Fellowship Competition, Finalist	2014
Harvard University Quantum Optics Center Prize Postdoctoral Fellowship Competition, Finalist	2014
LeRoy Apker Award for undergraduate thesis, American Physical Society Sole winner (representing MIT) amongst competing students from Ph.D.-granting institutions	2006
Malcolm Cotton Brown Award, MIT	2006
Phi Beta Kappa and Sigma Pi Sigma Honor Societies	2006
Agency for Science, Technology and Research (Singapore), Chairman's Honors List	2005, 2006

Josephine de Kármán Fellowship, Josephine de Kármán Foundation	2005
Top Prize, National Science Talent Search, Singapore	2001
Full scholarship for undergraduate and PhD studies (accepted)	

## PUBLICATIONS

*Highlights: 3 Science papers, 3 PRL Editors' Suggestions, 1 JCP Annual Editors' Choice*

1. J. Decamp, J. Gong, **H. Loh** and C. Miniatura, “A universal graph description for one-dimensional exchange models”, *Physical Review Research* **2**, 033297 (2020).
2. Z. Z. Yan, J. W. Park, Y. Ni, **H. Loh**, S. Will, T. Karman and M. W. Zwierlein, “Resonant dipolar collisions of ultracold molecules induced by microwave dressing”, *Physical Review Letters* **125**, 063401 (2020). 
3. J. Decamp, J. Gong, **H. Loh** and C. Miniatura, “Graph theory treatment of one-dimensional strongly repulsive fermions”, *Physical Review Research* **2**, 023059 (2020).
4. S. Ding, G. Maslennikov, R. Hablutzel, **H. Loh** and D. Matsukevich, “A quantum parametric oscillator with trapped ions”, *Physical Review Letters* **119**, 150404 (2017).  
*Featured in CQT Highlights*
5. J. W. Park, Z. Z. Yan, **H. Loh**, S. A. Will and M. W. Zwierlein, “Second-scale nuclear spin coherence time of trapped ultracold  $^{23}\text{Na}^{40}\text{K}$  molecules”, *Science* **357**, 372 (2017).  
*Featured in MIT News*
6. S. A. Will, J. W. Park, Z. Z. Yan, **H. Loh** and M. W. Zwierlein, “Coherent microwave control of ultracold  $^{23}\text{Na}^{40}\text{K}$  molecules”, *Physical Review Letters* **116**, 225306 (2016). 
7. **H. Loh**, S. Ding, R. Hablutzel, G. Maslennikov and D. Matsukevich, “Zeeman-splitting-assisted quantum logic spectroscopy of trapped ions”, *Physical Review A* **90**, 061402(R) (2014).
8. S. Ding, **H. Loh**, R. Hablutzel, M. Gao, G. Maslennikov and D. Matsukevich, “Microwave control of trapped-ion motion assisted by a running optical lattice”, *Physical Review Letters* **113**, 073002 (2014). 
9. K.-K. Ni, **H. Loh**, M. Grau, K. C. Cossel, J. Ye and E. A. Cornell, “Quantum-state detection of trapped  $\text{HfF}^+$  by photodissociation”, *Journal of Molecular Spectroscopy* **300**, 12 (2014).
10. **H. Loh**, K. C. Cossel, M. Grau, K.-K. Ni, E. R. Meyer, J. L. Bohn, J. Ye and E. A. Cornell, “Precision spectroscopy of polarized molecules in an ion trap”, *Science* **342**, 1220 (2013).  
*Featured in Science Perspective, ScienceDaily news and JILA news*
11. **H. Loh**, R. P. Stutz, T. S. Yahn, H. Looser, R. W. Field and E. A. Cornell, “REMPI spectroscopy of  $\text{HfF}^+$ ”, *Journal of Molecular Spectroscopy* **276**, 49 (2012).
12. M. Grau, A. E. Leanhardt, **H. Loh**, L. C. Sinclair, R. P. Stutz, T. S. Yahn and E. A. Cornell, “Near-infrared LIF spectroscopy of  $\text{HfF}^+$ ”, *Journal of Molecular Spectroscopy* **272**, 32 (2012).

13. **H. Loh**, J. Wang, M. Grau, T. S. Yahn, R. W. Field, C. H. Greene and E. A. Cornell, “Laser-induced fluorescence studies of  $\text{HfF}^+$  produced by autoionization”, *Journal of Chemical Physics* **135**, 154308 (2011).  
*Editors’ choice for year 2011*
14. A. E. Leanhardt, J. L. Bohn, **H. Loh**, P. Maletinsky, E. R. Meyer, L. C. Sinclair, R. P. Stutz and E. A. Cornell, “High-resolution spectroscopy on trapped molecular ions in rotating electric fields: A new approach for measuring the electron electric dipole moment”, *Journal of Molecular Spectroscopy* **270**, 1 (2011).  
*Top most cited article published in JMS since 2011*
15. J. K. Thompson, J. Simon, **H. Loh** and V. Vuletić, “A high-brightness source of narrowband, identical photon pairs”, *Science* **313**, 74 (2006).
16. **H. Loh**, Y.-J. Lin, I. Teper, M. Cetina, J. Simon, J. K. Thompson and V. Vuletić, “Influence of grating parameters on the linewidths of external-cavity diode lasers”, *Applied Optics* **45**, 9191 (2006).
17. V. Chabanenko, R. Puzniak, A. Nabialek, S. Vasiliev, V. Rusakov, **L. Huanqian**, R. Szymczak, H. Szymczak, J. Jun, J. Karpinski and V. Finkel, “Flux Jumps and H-T Diagram of Instability for  $\text{MgB}_2$ ”, *Journal of Low Temperature Physics* **130**, 175 (2003).

## INVITED TALKS

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| 1. EQuaLS 2020 – Physics without Frontiers, INSPEM, UPM, ICTP, “Experimental control of atomic and molecular quantum systems” (cancelled due to COVID-19)                  | 2020 |
| 2. Optical Society of America (OSA) Frontiers in Optics Annual Meeting, “Quantum control of ultracold dipolar molecules: towards quantum simulation of advanced materials” | 2019 |
| 3. World Economic Forum “Summer Davos” Meeting, Annual Meeting of the New Champions (Closed door hub session)  | 2019 |
| 4. Nanyang Technological University, Condensed Matter Physics Seminar, “Quantum control of ultracold dipolar molecules”  | 2019 |
| 5. Singapore University of Technology and Design, Engineering Product Development Seminar, “Ultracold molecules for quantum simulation of advanced materials”              | 2019 |
| 6. Materials Research Society – Singapore Conference on Advanced Materials, “Ultracold molecules for quantum simulation of advanced materials”                             | 2018 |
| 7. Institute of Physics Singapore (IPS) Meeting Plenary Talk, “Quantum control of ultracold dipolar molecules”   | 2018 |
| 8. University of Connecticut, Department of Physics Seminar, “Quantum control of ultracold dipolar molecules”  | 2017 |
| 9. University of Wisconsin, Department of Physics Seminar, “Quantum control of ultracold dipolar molecules”  | 2017 |
| 10. University of Chicago, Institute for Molecular Engineering Seminar, “Quantum control of ultracold dipolar molecules”   | 2017 |

11. MIT ‘Rising Stars in Physics’ Workshop, “Microwave control of ultracold molecules” 2016
12. Hot Topics, Annual Meeting of the Division of Atomic, Molecular and Optical Physics (DAMOP), “Long-lived nuclear spin coherence in ultracold NaK molecules”. 2016
13. Gordon Research Seminar on Quantum Science, “Long-lived nuclear spin coherence in ultracold fermionic NaK molecules”. 2016
4. Harvard University, AMO Seminar, “Search for an electron electric dipole moment (eEDM) with trapped molecular ions”. 2014
5. Massachusetts Institute of Technology, AMO Seminar, “Search for an electron electric dipole moment (eEDM) with trapped molecular ions”. 2013
6. Max Planck Institute for Quantum Optics, AMO Seminar, “Search for an electron electric dipole moment (eEDM) with trapped molecular ions”. 2013
7. Center for Quantum Technologies, National University of Singapore, AMO Seminar, “Search for the electron electric dipole moment (eEDM)”. 2009
8. DCMP/GQI Prize Session, American Physical Society March Meeting, “Atoms in a cavity: a source of narrowband photon pairs”. 2007

## OUTREACH

1. Public Zoom talk for junior college students 2020
2. NUS e-open house academic advisor and facilitator 2020
3. Editor, Singapore Quantum Vision Document – a community-based document surveying the quantum research landscape in Singapore with recommendations on supporting the Singapore quantum ecosystem 2019
4. CNA938 radio interview with John Yip 2019
5. QCamp opening lecture for junior college students, Centre for Quantum Technologies 2019
6. Panelist at NUS Physics Enrichment Camp for junior college students 2019
7. Judge, A\*STAR Talent Search 2019
8. Panelist at the Singapore Physics Olympiad award ceremony 2019
9. Light: Science and Applications (Nature publishing group) feature interview 2019
10. National Research Foundation magazine (“Research, Innovation and Enterprise News”) feature article 2019
11. National Research Foundation fellowship video interview 2018
12. NUS Physics Enrichment Camp for secondary school and junior college students 2018
13. Collaborator with artists-in-residence Otto Fong (cartoonist) and Eleanor Wong (playwright), Centre for Quantum Technologies 2014
14. Volunteer for “CU Wizards” show: physics outreach to children aged 10-14 years old 2012

15. Research project supervisor and workshop instructor for students aged 14-16 years old, Scientist-in-School Program, Ministry of Education (Singapore) 2007