

Yale-NUS College
16 College Ave West
Singapore 138527

Email: huikhooon.ng@yale-nus.edu.sg
Webpage: <http://quantum-nghk.commons.yale-nus.edu.sg>
(Last updated: July 3, 2023)

Academic qualifications

PhD in Physics, California Institute of Technology (Caltech), USA	Aug 2004 – Sep 2009
MEng in Applied Physics, Cornell University, USA	Aug 2002 – Jun 2003
AB in Physics (<i>summa cum laude</i>) & Mathematics (<i>magna cum laude</i>) <i>with distinction in all subjects</i> , Cornell University, USA	Aug 1999 – Jun 2002

Professional experience

Current position

Associate Professor, Yale-NUS College (YNC), the Centre for Quantum Technologies (CQT), and the Department of Physics, National University of Singapore (NUS)
Divisional Director (Science), Yale-NUS College
Head of Studies, Physical Sciences major, Yale-NUS College.

Research Leadership

Deputy Director (NUS), Majulab (France-Singapore joint research lab), Jan 2023 –
Associate Editor, IEEE Transactions on Quantum Engineering, Jan 2023 –
Co-Editor, EPL (letter journal of the European Physical Society), Apr 2019 –

Past positions

Assistant Professor (Physics), YNC	Jul 2013 – Jun 2019
Research Fellow, CQT, NUS (joint appointment)	Apr 2010 – Jun 2013
Senior Member of Technical Staff, DSO National Laboratories, Singapore	Oct 2009 – Jun 2013
Member of Technical Staff, DSO National Laboratories, Singapore	Aug 2003 – Aug 2004

Research focus

Physical aspects of quantum information and computation (theory), with expertise in quantum error correction and fault tolerance, quantum noise, and quantum tomography.

Selected research articles

JH Chai and HK Ng, *On the fault-tolerance threshold for surface codes with general noise*, Adv Quantum Technol, 2200008 (2022) (invited article).
M Fellous-Asiani, JH Chai, RS Whitney, A Auffèves, and HK Ng, *Limitations in quantum computing from resource constraints*, PRX Quantum 2, 040335 (2021).
Y Gu, R Mishra, B-G Englert, and HK Ng, *Randomized linear gate set tomography*, PRX Quantum 2, 030328 (2021).
Y Quek, S Fort, and HK Ng, *Adaptive Quantum State Tomography with Neural Networks*, npj Quantum Inf 7, 105 (2021).
A Jayashankar, AM Babu, HK Ng, and P Mandayam, *Finding good codes using the Cartan form*, Phys Rev A 101, 042307 (2020).
J Shang, Z Zhang, and HK Ng, *Superfast maximum likelihood reconstruction for quantum tomography*, Phys Rev A 95, 062338 (2017).
J Shang, HK Ng, A Sehwat, X Li, and B-G Englert, *Optimal error regions for quantum state estimation*, New J Phys 15, 123026 (2013).
HK Ng, DA Lidar, and J Preskill, *Combining dynamical decoupling with fault-tolerant quantum computation*, Phys Rev A 84, 012305 (2011).
HK Ng and P Mandayam, *Simple approach to approximate quantum error correction based on the transpose channel*, Phys Rev A 81, 062342 (2010).
R Blume-Kohout, HK Ng, D Poulin, and L Viola, *Characterizing the structure of preserved information in quantum processes*, Phys Rev Lett 100, 030501 (2008).

Awards and fellowships

Yale-NUS College Early Career Teaching Award, Jan 2019. Inaugural recipient.
CQT Fellowship, Jan 2019 – Dec 2023.
Graduate Research Assistantship, Caltech, Aug 2008 – Sep 2009.
Betty and Gordon Moore Fellowship, Caltech, Aug 2004 – Jul 2008.
David Delano Clark Award (Best MEng project, School of App & Eng Phys), Cornell University, 2003.
Paul Hartman Prize in Experimental Physics, Cornell University, 2022.
Defence Technology Training Award (undergraduate scholarship), Singapore, 1999 – 2003.