Ying Kai LOH

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Education	
University of California San Diego Postdoctoral Scholar	July 2021 – Current
University of Oxford (The Queen's College) D.Phil. in Inorganic Chemistry	Oct 2016 – Mar 2020
Nanyang Technological University Bachelor of Science in Chemistry and Biological Chemistry First Class Honours (GPA: 4.77/5.00) Winter exchange AY2015/S2 at the University College London, United Kingdom	Aug 2011 – Aug 2015
Professional Experience	
Postdoctoral Scholar with Prof. Guy Bertrand – University of California San Diego Research title "Synthesis and Reactivity of Carbenes, Borylenes and Nitrenes" For my postdoctoral research, I would be continuing the development of unique Main Group systems. However, my fit to the lighter p-block elements – carbenes, borylenes and nitrenes. These species, once regarded as lab curiosities, hav possess unprecedented reactivities, such as the ability to mimic transition metal chemistry, and have now been elevated linchpins that continue to open new avenues for academia and industry.	July 2021 – Current focus will be shifted now ve been discovered to ed to effective and modular
D.Phil. in Inorganic Chemistry with Prof. Simon Aldridge – University of Oxford Thesis title " <i>From N-Heterocyclic Imine to N-Heterocyclic Boryloxy Derived Main Group Species</i> " My PhD research is in the field of synthetic Main Group chemistry. My thesis features <i>four</i> first author papers and <i>on</i> impact journals (see Publication 4 to 8), with an overarching theme of employing the N-heterocyclic carbene and its i heterocyclic boryl framework for taming unprecedented main group species.	Oct 2016 – Mar 2020 <i>he</i> review paper in high isoelectronic N-
A*STAR Research Attachment with Dr. Jin Zhao and Prof. Tamio Hayashi – IMRE Research title " <i>Nickel-Catalyzed Tandem Carbometalation/Oxidative Coupling: Synthesis of AIE-Active 1,3-Butadien</i> During this pre-PhD research stint, I was developing an organic synthetic methodology harnessing nickel catalysis to hindered 1,3-butadienes for applications towards AIE materials.	nes" construct sterically
A*STAR Research Attachment with Dr. Jin Zhao and Prof. Andy Hor – National University of Singapore Full paper title " <i>Nickel-Catalyzed Facile</i> [2+2+2] <i>Cyclotrimerization of Unactivated Internal Alkynes to Polysubstiti</i> During this short research stint, I investigated the role of an N-heterocyclic carbene (NHC) nickel complex in the cata cyclotrimerization reaction. Results were subsequently published as a full paper in Chemistry: An Asian Journal with Publication 3).	Jun – Aug 2015 uted Benzenes" alytic [2+2+2] me as second author (see
FYP-URECA with Asst. Prof. Dragoslav Vidović – Nanyang Technological University Paper title " <i>A Dicationic Iminophosphane</i> " For the Final Year Project (FYP) of my undergraduate course, I had successfully isolated the elusive [P=N] ²⁺ molecul unsymmetrical carbene-carbone ligand system. With this work, I was awarded the Gold Medal for The Undergraduate Nobel Prize" and my thesis was published in the The Undergraduate Journal (see Honours and Awards). This work w Inorganic Chemistry with me as first author (see Publication 2).	Jul – Nov 2014 le employing an e Awards (UA) "Junior ⁄as also published in
Summer Research with Nanyang Prof. Francois Mathey – Nanyang Technological University Research title " <i>Reactivity of an Electrophilic Phosphinidene Complex</i> " This short summer research stint allowed me to explore the reactivity of a phosphinidene with Prof. Mathey who is the organophosphorus chemistry.	Jun – Jul 2014 ne pioneer of
Mini-FYP with Nanyang Asst. Prof. Rei Kinjo – Nanyang Technological University Paper title "1,2,4,3-Triazaborole-Based Neutral Oxoborane Stabilized by a Lewis Acid" During this Mini-Final Year Project, I had successfully isolated a rare oxoborane containing a B=O double bond. Thi Chemical Communications with me as first author (see Publication 1). This is also my first published academic paper	Jan – May 2014 s work was published in c.
URECA with Nanyang Asst. Prof. Rei Kinjo – Nanyang Technological University URECA report <i>"Synthesis of Nucleophilic Organoboron: Boryllithium and Borylene"</i> Undergraduate Research Experience on Campus (URECA) is offered by NTU to outstanding students to inculcate res undergraduate course. I was first introduced to the field of synthetic Main Group chemistry, which inspired me to pur	Aug 2012 – May 2013 search alongside a rigorous rsue this field to date (from

un undergraduate to PhD). During my URECA stint, I was attempting to synthesize unprecedented organoboron species such as the boron analogues of carbenes, which trained me to work with rigorously air and moisture free techniques (Schlenk line and glovebox) - typically required for this niche field of synthetic chemistry.



Education

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Summer Research with Asst. Prof. Motoki Yamane - Nanyang Technological University

Summer research report title "*New Synthetic Strategy for Tetra-substituted Alkene: Successive Cross-coupling of Acylsilane Enolate*" The summer research programme offered by the chemistry department of NTU aims at enabling students first-hand experience at chemical research. By signing up in the first year of my undergraduate course, I was introduced to synthetic organic research and exposed to the research lab environment, evoking my interest to pursue a career in academic research at an early stage.

Scholarships

National Science Scholarship (NSS PhD) by A*STAR

Awarded by A*STAR to support talents with a strong interest in research (science) for a PhD at a prestigious overseas university.

A*STAR Undergraduate Scholarship (AUS)

Awarded by A*STAR to support talents with a keen interest in research (science) for a Bachelor's degree at a local university.

Honours and Awards

Gold Medal Winner of The Undergraduate Awards (UA) "Junior Nobel Prize" 2015 The Undergraduate Awards (UA) is the World's leading undergraduate awards programme. My FYP thesis titled "*Capturing a Dicationic Phosphorus Mononitride Containing a P=N Double Bond*" was awarded the Gold Medal by the President of Ireland, Michael D. Higgins, based on 5117 submissions in 255 universities across 39 countries. I was also invited to a four-day UA Global Summit, which brought the winners and highly commended performers from around the world to Ireland to recognize their achievement and encourage cross-discipline and cross-border collaboration.

Chairman's Honours List (A*STAR) Awarded by A*STAR to the most outstanding undergraduate scholars who achieve the highest honours every year.	2015
Chairman's Honours List (A*STAR) Awarded by A*STAR to the most outstanding undergraduate scholars who achieve the highest honours every year.	2014
Dean's List (NTU) Awarded by NTU to the top 5% of the cohort every year.	2013
NTU President Research Scholar (Distinction) Awarded by NTU for excellent research work performed over the elite undergraduate research programme (URECA).	2013

Publications

9) An Air-Stable "Masked" Bis(imino)carbene: A Carbon-Based Dual Ambiphile

Ying Kai Loh, Mohand Melaimi, Dominik Munz, Guy Bertrand J. Am. Chem. Soc. **2023**, DOI: 10.1021/jacs.2c12847 *Highlight in ChemistryViews

8) A Crystalline Radical Cation Derived from Thiele's Hydrocarbon with Redox Range Beyond 1 V

Ying Kai Loh, Petra Vasko, Caitilín McManus, Andreas Heilmann, William K. Myers, Simon Aldridge Nat. Commun. 2021, 12, 7052

*Highlight in Nature Communications Editors' Highlights

7) Acid-Base Free Main Group Carbonyl Analogues

Ying Kai Loh, Simon Aldridge Angew. Chem., Int. Ed. 2020, 60, 8626–8648

6) An Acid-Free Anionic Oxoborane Isoelectronic with Carbonyl: Facile Access and Transfer of a Terminal B=O Double Bond <u>Ying Kai Loh</u>, Kieran Porteous, M. Ángeles Fuentes, Dinh Cao Huan Do, Jamie Hicks, Simon Aldridge *J. Am. Chem. Soc.* **2019**, *141*, 8073–8077

5) An N-Heterocyclic Boryloxy Ligand Isoelectronic with N-Heterocyclic Imines: Access to an Acyclic Dioxysilylene and its Heavier Congeners

<u>Ying Kai Loh</u>, Lu Ying, M. Ángeles Fuentes, Dinh Cao Huan Do, Simon Aldridge *Angew. Chem., Int. Ed.* **2019**, *58*, 4847–4851 *Highlight with cover artwork

4) Successive Protonation of an N-Heterocyclic Imine Derived Carbonyl: Superelectrophilic Dication versus Masked Acylium Ion <u>Ying Kai Loh</u>, M. Ángeles Fuentes, Petra Vasko, Simon Aldridge *Angew. Chem., Int. Ed.* **2018**, *57*, 16559–16563

3) Nickel-Catalyzed Facile [2+2+2] Cyclotrimerization of Unactivated Internal Alkynes to Polysubstituted Benzenes Fei Xue, <u>Ying Kai Loh</u>, Xiaolu Song, Wei Jie Teo, J. Y. Darrence Chua, Jin Zhao, T. S. Andy Hor *Chem. Asian J.* **2017**, *12*, 168–173

2) A Dicationic Iminophosphane

<u>Ying Kai Loh</u>, Chitra Gurnani, Rakesh Ganguly, Dragoslav Vidović *Inorg. Chem.* **2015**, *54*, 3087–3089 Aug 2013 - Aug 2015

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May - Aug 2012

Conference Presentations	
ACS Spring 2022 – San Diego, California Oral Presentation	Mar 2022
International Conference on Heteroatom Chemistry (ICHAC) – Prague, Czech Republic Oral Presentation	Jun 2019
Graduate Symposium – Oxford, United Kingdom Oral Presentation	May 2019
28 th International Conference on Organometallic Chemistry (ICOMC) – Florence, Italy Poster Presentation	Jul 2018
The 15 th International Symposium Inorganic Ring Systems (IRIS) – Kyoto, Japan Poster Presentation	Jun 2018
Dalton 2018 – Warwick, United Kingdom Poster Presentation	Apr 2018
The 8 th Singapore International Chemistry Conference (SICC) – Singapore Poster Presentation	Dec 2014