

Julian Chan, PhD MRSC

Scientist & Team Leader (PI)
Institute of Sustainability for Chemicals, Energy & Environment
Agency for Science, Technology and Research (A*STAR)
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EDUCATION

Ph.D. Organic Chemistry	Massachusetts Institute of Technology, 2010	(GPA: 5.0/5.0)
B.S. Chemistry	University of Illinois at Urbana-Champaign, 2005 <i>Summa cum laude</i>	(GPA: 4.0/4.0)

PROFESSIONAL EXPERIENCE

May 2021 – present	Scientist III / Team Leader , ISCE ² , A*STAR, Singapore
July 2015 – Sep 2020	Adjunct Professor , University of Ottawa (2019 – 2020) Assistant Professor , University of Ottawa (2015 – 2019)
Aug 2012 – Dec 2014	Research Scientist , IBM–Almaden Research Center (San Jose, CA)
Aug 2010 – Aug 2012	Postdoctoral Fellow , University of California, Berkeley & Lawrence Berkeley National Lab

PROFILE SUMMARY

- Expertise: Sustainable polymers, Functional organic materials
- 13 years post-PhD experience across USA, Canada, and Singapore
- 7+ years leading independent research groups
- 43 papers, 6 U.S. patents, 1.74M USD in funding

AWARDS AND HONORS

- *SERC Central Research Fund UIBR, 2022*
- *A*STAR Career Development Award, 2021*
- *Ontario Early Researcher Award (ERA), 2019*
- *IBM First Plateau Invention Achievement Award, 2015*
- *IBM Patent Invention Achievement Award, 2014*
- *Thieme Chemistry SYNStar Award, 2006*
- *MIT-DuPont Presidential Fellowship, 2005–2006*
- *UIUC Departmental Highest Distinction, 2005*
- *UIUC James Scholar, 2005*
- *Bronze Tablet Award, 2005*
- *Robert H. Doremus Scholarship, 2004*
- *Jean Dreyfus Boissevain Research Award, 2004*
- *Arthur R. Matheson Award, 2004*
- *Worth Rodebush Award, 2003*
- *Hach Scientific Foundation Scholarship (awarded twice), 2003 & 2004*

- *University of Illinois Dean's List, 2002–2005*
- *Golden Key International Honour Society, 2002–2005*
- *National Society of Collegiate Scholars, 2002–2005*
- *Phi Beta Kappa Honour Society, 2002–2005*
- *Dads Association Library Award, 2002*
- *Ralph E. Telford Achievement Award, 2002*
- *The National Dean's List, 2001–2005*
- *Colgate-Palmolive Research Fellowship, 2001*
- *Pittsburgh Plate Glass Research Grant, 2001*
- *9th Singapore Chemistry Olympiad Silver Medal, 1998*

RESEARCH FUNDING (as sole PI)

Year	Source <i>Project title</i>	Type	Amount (in USD)	Purpose
2022-2025	SERC Central Research Fund UIBR <i>New Strategies for Polymer Recycling/Upcycling</i>	Gov.	\$439,000	Research
2021-2024	2021 A*STAR CDF <i>Polymer Upcycling via C–H Functionalization</i>	Gov.	\$182,000	Research
2019-2024	Early Researcher Award <i>Novel Organic Materials with Optoelectronic & Magnetic Properties</i>	Gov.	\$116,000	Research
2019-2021	New Frontiers in Research Fund <i>Molecular Designs for Organic Excitonic Superconductors</i>	Gov.	\$178,000	Research
2016-2022	NSERC Discovery Grant <i>Design & Synthesis of Conductive Organic Materials</i>	Gov.	\$140,000	Research
2016	Ontario Research Fund <i>Design & Synthesis of Novel Organic Conductors</i>	Gov.	\$215,000	Infrastructure
2015	CFI John Evans Leaders Fund <i>Design & Synthesis of Novel Organic Conductors</i>	Gov.	\$215,000	Equipment
2015	New Professors Library Fund <i>Design & Synthesis of Molecular Conductors</i>	Uni.	\$1,570	Research support
2015	University Startup Funds <i>Design & Synthesis of Molecular Conductors</i>	Uni.	\$190,000	Research
Total funds:			\$1.74 M USD	

STAFF & STUDENT SUPERVISION

	BS	MS	PhD	Postdoc	Research technician	Research scientist	Visiting researcher
Total: 17	6	2	1	3	1	3	1

Dr. Jayasree Seayad – Senior Scientist I	2022–present
Dr. He-Kuan Luo – Senior Scientist I	2022–present
Dr. Dexter Tam – Scientist II	2022–present
Michelle Ong – Senior Research Engineer II	2021–present
Guoxian Zhang – PhD candidate, Yu Scholar	2016–2021
Dr. Balamurugan Ayyakkalai – Postdoctoral fellow	2019–2019
Ayoung Shin – BSc candidate, volunteer	2018–2019
Kyle Passley – BSc candidate, NSERC USRA	2018–2019
Harold Lu – BSc candidate, Honors	2017–2018
Dillon Dong – BSc candidate, Honors	2017
Victoria Hillier – BSc candidate, UROP	2017–2018
Janire Matas – Visiting researcher	2017
Dr. Prabhat Gautam – Postdoctoral fellow	2017–2018
Craig Yu – MSc candidate (graduated)	2016–2018
Thomas Brossier – Visiting MSc candidate	2016
Dr. Tarunpreet Singh Virk – Postdoctoral fellow	2015–2016
Étienne Rhéaume – BSc candidate, NSERC USRA	2015–2016

SERVICE, TEACHING, COLLABORATIONS

External service

- **External grant reviewer (invited):**
 - NSERC Discovery Grant, Canada
 - A*STAR AME Individual Research Grant, Singapore
 - KAUST Competitive Research Grants, Saudi Arabia
- **Peer reviewer:**
 - ACS Applied Materials and Interfaces
 - ACS Applied Energy Materials
 - ACS Applied Bio Materials
 - Journal of Materials Chemistry C
 - Journal of Organic Chemistry
 - ACS Macro Letters
 - Polymer Chemistry
 - Beilstein Journal of Organic Chemistry
 - Materials Today Commun.
 - Chemistry – A European Journal
 - New Journal of Chemistry
 - RSC Advances
 - The Chemical Record
 - Journal of Physical Chemistry
 - Soft Matter
 - Journal of Chemical Education
 - ChemistryOpen
 - Journal of the American Chemical Society
- **Judge for grad student posters, 100th CCCE conference, Toronto, May 2017**
- **PhD examiner, Carleton University, Ottawa, May 2017**
 École Polytechnique de Montréal, Dec 2016

Institutional service @uOttawa

- **Departmental Professional Development Committee**
- **Undergrad Honors Research Poster Judge**
- **Chair/Examiner for MSc & PhD defenses**
- **Internal reviewer, International Research Acceleration Program**

International collaborations (as PI)

- **Cormode lab, University of Pennsylvania, USA.** 2017–2018
- **Sun lab, Nanyang Technological University, Singapore.** 2017–2018
- **Xia lab, Institute of Chemistry, Chinese Academy of Sciences.** 2017–present
- **Sardon lab, University of the Basque Country, Spain.** 2015–present
- **Liu lab, National Taiwan University.** 2016–present
- **Romain lab, Imperial College London, UK.** 2022–present
- **Wong lab, UC Riverside, USA.** 2016

Teaching

- **CHM 2120: Organic Chemistry II.** Class size: 420
- **CHM 4155: Polymer and Applied Chemistry.** Class size: 80
- **CHM 8256: Graduate Organic Chemistry Seminar.** Class size: 30

PUBLICATIONS

- 2,521 citations across 43 papers. H-index: 30
- Papers 30, 33–43 stem from independent research

Peer-reviewed papers

43. Valle, M.; Ximenis, M.; Lopez de Pariza, X.; **Chan, J. M. W.***; Sardon, H.* Spotting Trends in Organocatalyzed and Other Organomediated (De)polymerizations and Polymer Functionalizations *Angew. Chem. Int. Ed.* **2022**, *61*, e202203043.
42. Chou, L.-H.; **Chan, J. M. W.***; Liu, C.-L.* Progress in Spray-Coated Perovskite Films for Solar Cell Applications. *Solar RRL* **2022**, *6*, 2101035.
41. Zhang, W.; Xu, W.; Zhang, G.; Kong, J.; Niu, X.; **Chan, J. M. W.***; Liu, W.*; Xia, A.* Direct Tracking Excited-State Intramolecular Charge Redistribution of Acceptor–Donor–Acceptor Molecule by Means of Femtosecond Stimulated Raman Spectroscopy. *J. Phys. Chem. B* **2021**, *125*, 4456–4464.
40. Zhang, G.; Gautam, P.; **Chan, J. M. W.*** Symmetrical and Unsymmetrical Fluorine-Rich Ullazines via Controlled Cycloaromatizations. *Org. Chem. Front.* **2020**, *7*, 787–795.
39. **Chan, J. M. W.*** Pentafluorosulfanyl Group: An Emerging Tool in Optoelectronic Materials. *J. Mater. Chem. C* **2019**, *7*, 12822–12834. *Invited contribution for the 2019 Emerging Investigators Themed Issue.*

38. Niu, X.; Gautam, P.; Kuang, Z.; Yu, C. P.; Guo, Y.; Song, H.; Guo, Q.; **Chan, J. M. W.***; Xia, A. Intramolecular Charge Transfer and Solvation Dynamics of Push-Pull Dyes with Different π -Conjugated Linkers. *Phys. Chem. Chem. Phys.* **2019**, *21*, 17323–17331.
37. Zhang, G.; Lee, Y.-J.; Gautam, P.; Lin, C.-C.; Liu, C.-L.; **Chan, J. M. W.*** Pentafluorosulfanylated Polymers as Electrets in Nonvolatile Organic Field-Effect Transistor Memory Devices. *J. Mater. Chem. C* **2019**, *7*, 7865–7871. (Inside front cover)
36. Zhang, G.; Naha, P. C.; Gautam, P.; Cormode, D. P.; **Chan, J. M. W.*** Water-Dispersible Bismuth–Organic Materials with Computed Tomography (CT) Contrast Properties. *ACS Appl. Bio Mater.* **2018**, *1*, 1918–1926.
35. Gautam, P.; Wang, Y.; Zhang, G.; Sun, H.; **Chan, J. M. W.*** Using the Negative Hyperconjugation Effect of Pentafluorosulfonyl Acceptors to Enhance Two-Photon Absorption in Push-Pull Chromophores. *Chem. Mater.* **2018**, *30*, 7055–7066.
34. Gautam, P.; Yu, C. P.; Zhang, G.; Hillier, V. E.; **Chan, J. M. W.*** Pulling with the Pentafluorosulfonyl Acceptor in Push-Pull Dyes. *J. Org. Chem.* **2017**, *82*, 11008–11020.
- Among most downloaded articles of Oct 2017
33. Zhang, G.; **Chan, J. M. W.*** Reversibly Thermochromic Bismuth–Organic Materials with Tunable Optical Gaps. *J. Mater. Chem. C* **2017**, *5*, 10007–10015.
32. Liu, S.; Ono, R. J.; Wu, H.; Teo, J. Y.; Liang, Z. C.; Xu, K.; Zhang, M.; Zhong, G.; Tan, J. P. K.; Ng, M.; Yang, C.; **Chan, J.**; Ji, Z.; Bao, C.; Kumar, K.; Gao, S.; Lee, A.; Fevre, M.; Dong, H.; Ying, J. Y.; Li, L.; Fan, W.; Hedrick, J. L.; Yang, Y. Y. Highly Potent Antimicrobial Polyionenes with Rapid Killing Kinetics, Skin Biocompatibility and in vivo Bactericidal Activity. *Biomaterials* **2017**, *127*, 36–48.
31. **Chan, J. M. W.**; Wojtecki, R. J.; Sardon, H.; Lee, A. L. Z.; Smith, C. E.; Shkumatov, A.; Gao, S.; Kong, H.; Yang, Y. Y.; Hedrick, J. L. Self-Assembled, Biodegradable Magnetic Resonance Imaging Agents: Organic Radical-Functionalized Diblock Copolymers. *ACS Macro Lett.* **2017**, *6*, 176–180.
30. Virk, T. S.; Ilawe, N. V.; Zhang, G.; Yu, C. P.; Wong, B. M.; **Chan, J. M. W.*** Sultam-based Hetero[5]helicene: Synthesis, Structure, and Crystallization-Induced Emission Enhancement. *ACS Omega* **2016**, *1*, 1336–1342.
- Second most highly downloaded article of Issue No. 6
29. **Chan, J. M. W.**; Tan, J. P. K.; Engler, A. C.; Ke, X.; Gao, S.; Yang, C.; Sardon, H.; Yang, Y. Y.; Hedrick, J. L. Organocatalytic Anticancer Drug Loading of Degradable Polymeric Mixed Micelles via a Biomimetic Mechanism. *Macromolecules* **2016**, *49*, 2013–2021.
- Top 20 most downloaded articles of March 2016.
28. Ong, Z. Y.; Coady, D. J.; Tan, J. P. K.; Li, Y.; **Chan, J. M. W.**; Hedrick, J. L.; Yang, Y. Y. Design and Synthesis of Biodegradable Grafted Cationic Polycarbonates as Broad Spectrum Antimicrobial Agents. *J. Polym. Sci., Part A: Polym. Chem.* **2016**, *54*, 1029–1035.
- Spotlight article

27. Sardon, H.; Tan, J. P. K.; **Chan, J. M. W.**; Mantione, D.; Mecerreyes, D.; Hedrick, J. L.; Yang, Y. Y. Thermoresponsive Random Poly(ether urethanes) with Tailorable LCSTs for Anticancer Drug Delivery. *Macromol. Rapid Commun.* **2015**, *36*, 1761–1767.
26. Pascual, A.; Tan, J. P. K.; **Chan, J. M. W.**; Coady, D. J.; Mecerreyes, D.; Hedrick, J. L.; Yang, Y. Y.; Sardon, H. Broad-Spectrum Antimicrobial Polycarbonate Hydrogels with Fast Degradability. *Biomacromolecules* **2015**, *16*, 1169–1178.
25. Engler, A. C.; Ke, X.; Gao, S.; **Chan, J. M. W.**; Coady, D. J.; Ono, R. J.; Lubbers, R.; Nelson, A.; Yang, Y. Y.; Hedrick, J. L. Hydrophilic Polycarbonates: Promising Degradable Alternatives to Poly(ethyleneglycol)-based Stealth Materials. *Macromolecules* **2015**, *48*, 1673–1678.
24. Xu, Q.; Sardon, H.; **Chan, J. M. W.**; Hedrick, J. L.; Yang, Y. Y. Polyurethane-coated Silica Particles with Broad-Spectrum Antibacterial Properties. *Polym. Chem.* **2015**, *6*, 2011–2022.
23. **Chan, J. M. W.***; Zhang, X.; Sardon, H.; Engler, A. C.; Fox, C. H.; Frank, C. W.; Waymouth, R. M.; Hedrick, J. L. Organocatalytic Ring-Opening Polymerization of Trimethylene Carbonate to Yield a Biodegradable Polycarbonate. *J. Chem. Educ.* **2015**, *92*, 708–713.
22. Ng, V. W. L.; **Chan, J. M. W.**; Sardon, H.; Ono, R. J.; García, J. M.; Yang, Y. Y.; Hedrick, J. L. Antimicrobial Hydrogels: A New Weapon in the Arsenal against Multidrug Resistant Infections. *Adv. Drug Deliv. Rev.* **2014**, *78*, 46–62.
21. Ke, X.; Ng, V. W. L.; Ono, R. J.; **Chan, J. M. W.**; Krishnamurthy, S.; Wang, Y.; Hedrick, J. L.; Yang, Y. Y. Role of Non-Covalent and Covalent Interactions in Cargo Loading Capacity and Stability of Polymeric Micelles. *J. Control. Release* **2014**, *193*, 9–26.
20. Liu, S. Q.; Venkataraman, S.; Ong, Z. Y.; **Chan, J. M. W.**; Yang, C.; Hedrick, J. L.; Yang, Y. Y. Overcoming Multidrug Resistance in Microbials Using Nanostructures Self-assembled from Cationic Bent-core Oligomers. *Small* **2014**, *10*, 4130–4135.
19. **Chan, J. M. W.***; Ke, X.; Engler, A. C.; Sardon, H.; Yang, Y. Y.; Hedrick, J. L. Chemically Modifiable *N*-Heterocycle-functionalized Polycarbonates as a Platform for Diverse Smart Biomimetic Nanomaterials. *Chem. Sci.* **2014**, *5*, 3294–3300.
 - Among “Most downloaded articles” of July 2014
18. Sardon, H.; **Chan, J. M. W.**; Ono, R. J.; Mecerreyes, D.; Hedrick, J. L. Highly Tunable Polyurethanes: Organocatalyzed Polyaddition and Subsequent Post-polymerization Modification of Pentafluorophenyl Ester Sidechains. *Polym. Chem.* **2014**, *5*, 3547–3550.
17. Sardon, H.; Engler, A. C.; **Chan, J. M. W.**; García, J. M.; Coady, D. J.; Pascual, A.; Mecerreyes, D.; Jones, G. O.; Rice, J. E.; Horn, H. W.; Hedrick, J. L. Organic Acid-Catalyzed Polyurethane Formation via a Dual-Activated Mechanism: Unexpected Preference of *N*-activation over *O*-activation of Isocyanates. *J. Am. Chem. Soc.* **2013**, *135*, 16235–16241.
16. **Chan, J. M. W.***; Sardon, H.; Engler, A. C.; García, J. M.; Hedrick, J. L. Tetra-*n*-butylammonium Fluoride as an Efficient Transesterification Catalyst for Functionalizing Cyclic Carbonates and Aliphatic Polycarbonates. *ACS Macro Lett.* **2013**, *2*, 860–864.
 - Top 20 most read article of the month.

15. Engler, A. C.; **Chan, J. M. W.**; Fukushima, K.; Coady, D. J.; Yang, Y. Y.; Hedrick, J. L. Polycarbonate-based Brush Polymers with Detachable Disulfide-linked Side Chains. *ACS Macro Lett.* **2013**, *2*, 332–336.
14. Sardon, H.; Engler, A. C.; **Chan, J. M. W.**; Coady, D. J.; O'Brien, J. M.; Mecerreyes, D.; Yang, Y. Y.; Hedrick, J. L. Homogeneous Isocyanate- and Catalyst-free Synthesis of Polyurethanes in Aqueous Media. *Green Chem.* **2013**, *15*, 1121–1126.
13. Engler, A. C.; **Chan, J. M. W.**; Coady, D. J.; O'Brien, J. M.; Sardon, H.; Nelson, A.; Sanders, D. P.; Yang, Y. Y.; Hedrick, J. L. Accessing New Materials Through Polymerization and Modification of a Polycarbonate with a Pendant Activated Ester. *Macromolecules* **2013**, *46*, 1283–1290.
12. **Chan, J. M. W.**; Bauer, S.; Sorek, H.; Sreekumar, S.; Wang, K.; Toste, F. D. Studies on the Vanadium-Catalyzed Nonoxidative Depolymerization of *Miscanthus giganteus*-derived Lignin. *ACS Catal.* **2013**, *3*, 1369–1377.
11. **Chan, J. M. W.**; Amarante, G. W.; Toste, F. D. Tandem Cycloisomerization/Suzuki Coupling of Arylethynyl MIDA Boronates. *Tetrahedron* **2011**, *67*, 4306–4312.
 - Front cover article of this issue.
10. **Chan, J. M. W.**; Kooi, S. E.; Swager, T. M. Synthesis of Stair-stepped Polymers Containing Dibenz[*a,h*]anthracene Subunits. *Macromolecules* **2010**, *43*, 2789–2793.
9. **Chan, J. M. W.**; Tischler, J. R.; Kooi, S. E.; Bulović, V.; Swager, T. M. Synthesis of J-Aggregating Dibenz[*a,j*]anthracene-Based Macrocyces. *J. Am. Chem. Soc.* **2009**, *131*, 5659–5666.
8. **Chan, J. M. W.**; Swager, T. M. Synthesis of Arylethynylated Cyclohexa-*m*-phenylenes via Sixfold Suzuki Coupling", *Tetrahedron Lett.* **2008**, *49*, 4912–4914.
7. Song, Y.; **Chan, J. M. W.**; Tovian, Z.; Secrest, A.; Nagy, E.; Krysiak, K.; Bergan, K.; Parniak, M. A.; Oldfield, E. Bisphosphonate Inhibitors of ATP-mediated HIV-1 Reverse Transcriptase Catalyzed Excision of Chain-terminating 3'-azido, 3'-deoxythymidine: A QSAR Investigation. *Bioorg. Med. Chem.* **2008**, *16*, 8959–8967.
6. Hudock, M. P.; Sanz-Rodriguez, C. E.; Song, Y.; **Chan, J. M. W.**; Zhang, Y.; Odeh, S.; Kosztowski, T.; Leon-Rossell, A.; Concepcion, J. L.; Yardley, V.; Croft, S. L.; Urbina, J. A.; Oldfield, E. Inhibition of Trypanosoma cruzi Hexokinase by Bisphosphonates. *J. Med. Chem.* **2006**, *49*, 215–223.
5. Kotsikorou, E.; Song, Y.; **Chan, J. M. W.**; Faelens, S.; Tovian, Z.; Broderick, E.; Bakalara, N.; Docampo, R.; Oldfield, E. Bisphosphonate Inhibition of the Exopolyphosphatase Activity of the Trypanosoma brucei Soluble Vacuolar Pyrophosphatase. *J. Med. Chem.* **2005**, *48*, 6128–6139.
4. Sanders, J. M.; Song, Y.; **Chan, J. M. W.**; Jennings, S.; Kosztowski, T.; Odeh, S.; Flessner, R.; Kotsikorou, E.; Meints, G.; Gomez, A. O.; Gonzalez-Pacanowska, D.; Raker, A. M.; Wang, H.; Morita, C. T.; Oldfield, E. Pyridinium-1-yl Bisphosphonates are Potent Inhibitors of Farnesyl Diphosphate Synthase. *J. Med. Chem.* **2005**, *48*, 2957–2963.
3. Ling, Y.; Sahota, G.; Odeh, S.; **Chan, J. M. W.**; Araujo, F. G.; Moreno, S. N. J.; Silvia, N. J.; Oldfield, E. Bisphosphonate Inhibitors of Toxoplasma gondii Growth: In Vitro, QSAR and In Vivo Investigations. *J. Med. Chem.* **2005**, *48*, 3130–3140.

2. Sanders, J. M.; Ghosh, S.; **Chan, J. M. W.**; Meints, G. A.; Wang, H.; Raker, A. M.; Song, Y.; Colantino, A.; Burzynska, A.; Kafarski, P.; Morita, C. T.; Oldfield, E. Quantitative Structure-Activity Relationships for γ,δ T-Cell Activation by Bisphosphonates. *J. Med. Chem.* **2004**, *47*, 375–384.
1. Ghosh, S.; **Chan, J. M. W.**; Lea, C. R.; Meints, G. A.; Lewis, J. C.; Tovian, Z. S.; Flessner, R. M.; Loftus, T. C.; Bruchhaus, I.; Kendrick, H.; Croft, S. L.; Kemp, R. G.; Kobayashi, S.; Nozaki, T.; Oldfield, E. Effects of Bisphosphonates on the Growth of *Entamoeba histolytica* and *Plasmodium* Species in vitro and in vivo. *J. Med. Chem.* **2004**, *47*, 175–187.

U.S. PATENTS AND INVENTION DISCLOSURES

9. Nguyen, T. M., Lim, Y. W., Chua, M. H., **Chan, J. M. W.** Benzo[1,3]oxazino[3,2-a]indoline derivatives as organocatalysts for photopolymerization of methacrylate monomers at visible wavelengths. A*STAR *Technology Disclosure* 2218-TMN-SP. Filed Sep 20, **2022**.
8. **Chan, J. M. W.**; Wojtecki, R. J.; Hedrick, J. L.; Yang, Y. Y.; Lee, A. L. Z. Biodegradable Organic Radical-Functionalized Polycarbonates for Medical Applications. *U.S. Patent* 9,718,951, **2017**.
7. **Chan, J. M. W.**; Hedrick, J. L.; Ono, R. J.; Teo, J. Y.; Yang, Y. Y.; Zhang, M. S. Antimicrobial Polymers Formed by Bulk Polyaddition. *U.S. Patent* 9,642,360, **2017**.
6. Breyta, G.; **Chan, J. M. W.**; Coady, D. J.; Engler, A. C.; Garcia, J. M.; Han, W.; Hedrick, J. L.; Liu, S.; Nelson, A.; Ono, R. J.; Teo, J. Y.; Yang, Y. Y.; Zhang, M. S. Condensation Polymerization for Antimicrobial Applications. *U.S. Patent* 9,580,554, **2017**.
5. **Chan, J. M. W.**; Engler, A. C.; Sardon, H.; Hedrick, J. L.; Yang, Y. Y. Polycarbonates Bearing Aromatic *N*-Heterocycles for Drug Delivery. *U.S. Patent* 9,717,797, **2017**.
4. **Chan, J. M. W.**; Coady, D. J.; Engler, A. C.; Garcia, J. M.; Hedrick, J. L.; Ong, Z. Y.; Sardon, H.; Yang, Y. Y. Catalyst-free Methods of Forming Polyurethanes from Pentafluorophenyl Carbonates. *U.S. Patent* 9,062,160, **2015**.
3. Lin, B. F.; **Chan, J. M. W.**; Nelson, A.; Engler, A. C.; Hedrick, J. L.; Maune, H. Irreversibly Degradable Polycarbonate-based Complex Coacervate. *IBM Invention Disclosure*, **2014**.
2. Sanders, J. M.; Song, Y.; **Chan, J. M. W.**; Oldfield, E.; Zhang, Y. Bisphosphonate Compounds and Methods for Bone Resorption Diseases, Cancer, Bone Pain, Immune Disorders and Infectious Diseases. *U.S. Patent* 8,071,573, **2011**.
1. Parniak, M.; Mellors, J. W.; Oldfield, E.; Tovian, Z.; **Chan, J. M. W.** Composition and Methods for Use of Antiviral Drugs in the Treatment of Retroviral Diseases Resistant to Nucleoside Reverse Transcriptase Inhibitors. *U.S. Patent App.* 10/927683, **2004**.

CONFERENCES AND INVITED TALKS

15. “*Masterclass: Grant Writing*”. Institute of Chemical & Engineering Sciences, A*STAR, Singapore, January 7, 2022. *Invited*.
14. 102nd Canadian Chemistry Conference and Exhibition, Québec City, Canada, June 2019. “*Innovative Concepts in Organic Materials*” Symposium. *Invited*.

13. 101st Canadian Chemistry Conference and Exhibition, Edmonton, Canada, 2018. *“Emerging Materials Chemistry Investigator”* Symposium. *Invited*.
12. Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, USA, January 2018. *Invited*.
11. 100th Canadian Chemistry Conference and Exhibition, Toronto, ON, Canada, May 2017.
10. University of Ottawa New Professors Lecture Program, Ottawa, ON, Canada, May 2017. *Invited*.
9. 99th Canadian Chemistry Conference and Exhibition, Halifax, NS, Canada, June 2016.
8. National University of Singapore, Singapore, September 2014. *Invited*.
7. University of California, Riverside, California, USA, February 2014. *Invited*.
6. Carnegie Mellon University, Pittsburgh, Pennsylvania, USA, December 2013. *Invited*.
5. IBM Almaden Research Center, San Jose, California, USA, April 2012. *Invited*.
4. MIT Research Symposium in Organic and Bioorganic Chemistry, Cambridge, USA, 2009.
3. 234th ACS National Meeting, Boston, Massachusetts, USA, 2007.
2. 21st International Liquid Crystal Conference, Keystone, Colorado, USA, 2006.
1. Colgate-Palmolive Research Symposium, Urbana, Illinois, USA, 2002. *Invited*.

PROFESSIONAL MEMBERSHIPS

- American Chemical Society (ACS)
- Member of the Royal Society of Chemistry (MRSC), UK
- International Union of Pure and Applied Chemistry (IUPAC)
- Canadian Society for Chemistry (CSC)
- Chemical Institute of Canada (CIC)
- The Singapore National Institute of Chemistry (SNIC)