

Gino Occhialini

GRADUATE STUDENT · MASSACHUSETTS INSTITUTE OF TECHNOLOGY

✉ ginoocch@mit.edu | 🎓 Gino Occhialini

Education

Massachusetts Institute of Technology (MIT)

Ph.D. Chemistry (GPA: 5.00/5.00)

Advisor: Alison Wendlandt

NSF Graduate Research Fellow

Cambridge, MA

Aug. 2018 - Sept. 2024

University of Texas at Dallas (UTD)

B.S. Chemistry (GPA: 4.00/4.00)

Graduation Honors: Major Honors with Distinction, Summa Cum Laude

Richardson, TX

Aug. 2014 - May 2018

Research Experience

Postdoctoral Scholar

Reisman Lab, Department of Chemistry, Caltech

Development of new synthetic methods for the construction of complex molecules

Pasadena, CA

Jan. 2025 - Present

Research Assistant

Wendlandt Lab, Department of Chemistry, MIT

Development of light-driven stereo- and positional editing tools

- Internal to terminal positional olefin isomerization
- Pyranoside stereoediting + mechanistic studies
- Terminal selective acceptorless dehydrogenation

Cambridge, MA

Aug. 2018 - Sept. 2024

Undergraduate Research Assistant

Smaldone Lab, Department of Chemistry, UTD

Synthesis and characterization of novel covalent organic frameworks

- Understanding the role of monomer electronics and planarity on COF formation
- Novel COF topologies to enhance gas adsorption properties

Richardson, TX

July 2015 - Aug. 2018

Summer Undergraduate Research Fellow

Sieglwart Lab, Simmons Cancer Center, UTSW

Synthesis and characterization of turn-on fluorescent probes for cancer diagnosis and imaging.

Dallas, TX

Summer 2016

Teaching Experience

Massachusetts Institute of Technology

Teaching Assistant - Organic Chemistry I (5.12)

Head teaching assistant (Spring 2019) for team of 9 graduate student TAs

Outstanding Teaching Award (2019)

Cambridge, MA

Aug. 2018 - May 2019

University of Texas at Dallas

Teaching Assistant - Honors Organic Chemistry I & II (CHEM2327, CHEM2328)

Outstanding Undergraduate TA Award (2018)

Richardson, TX

Aug. 2015 - May. 2018

Teaching Assistant - Anatomy & Physiology I (BIOL3455)

Jan. 2016 - Dec. 2016

Teaching Assistant - Biochemistry I (BIOL3361)

Aug. 2015 - May. 2016

Selected Peer-Reviewed Publications

† indicates equal contribution

Carder, H. M.†; **Occhialini, G.†**; Bistoni, G.; Riplinger, C.; Kwan, E. E.; Wendlandt, A. E. Emergent selectivity in complex stereorearrays. *Science* **2024**, 385, 456–463

Gu, X.†; Zhang, Y.-A.†; Wang, L.; Ye, X.; **Occhialini, G.**; Barbour, J.; Pentelute, B. L.; Wendlandt, A. E. Synthesis of Non-Canonical Amino Acids through Dehydrogenative Tailoring. *Nature* **2024**, 634, 456–463.

Occhialini, G.; Palani, V.; Wendlandt, A. E. Catalytic, contra-thermodynamic positional alkene isomerization. *J. Am. Chem. Soc.* **2022**, 144, 145–152.

Thompson, C. M. †; **Occhialini, G.†**; McCandless, G. T.; Alahakoon, S. B.; Cameron, V.; Nielsen, S. O.; Smaldone, R. A. Computational and Experimental Studies on the Effects of Monomer Planarity on Covalent Organic Framework Formation. *J. Am. Chem. Soc.* **2017**, 139, 10506–10513.

Alahakoon, S. B.†; **Occhialini, G.†**; McCandless, G. T.; Karunathilake, A. A. K.; Nielsen, S. O.; Smaldone, R. A. Experimental and theoretical insight into the effect of fluorine substituents on the properties of azine linked covalent organic frameworks. *CrystEngComm* **2017**, 19, 4882–4885.

Xiong, H.; Zuo, H.; Yan, Y.; **Occhialini, G.**; Zhou, K.; Wan, Y.; Siegwart, D. J. High-contrast fluorescence detection of metastatic breast cancer including bone and liver micrometastases via size-controlled pH-activatable water-soluble probes. *Adv. Mat.* **2017**, 29, 1700131.

Alahakoon, S. B.; Thompson, C. M.; **Occhialini, G.**; Smaldone, R. A. Design principles for covalent organic frameworks in energy storage applications. *ChemSusChem* **2017**, 10, 2116–2129

Alahakoon, S. B.; Thompson, C. M.; Nguyen, A. X.; **Occhialini, G.**; McCandless, G. T.; Smaldone, R. A. An azine-linked hexaphenylbenzene based covalent organic framework. *Chem. Comm.* **2016**, 52, 2843–2845

Honors & Fellowships

- 2024 **Leadership Award**, MIT Chemistry
- 2024 **Chemistry Fellowship**, MIT Chemistry
- 2020 **National Science Foundation Graduate Research Fellow**, NSF
- 2020 **Strem Family Fellowship**, MIT Chemistry
- 2019 **Outstanding Teaching Award**, MIT Chemistry
- 2019 **Kenneth M. Gordon Fellowship**, MIT Chemistry
- 2018 **John P. Ferraris Research Excellence Award**, UTD Chemistry
- 2018 **Hertz Fellowship Semifinalist**, Hertz Foundation
- 2018 **Patty Henry Pinch Scholarship**, UTD
- 2018 **Outstanding Undergraduate TA**, UTD School of Natural Sciences and Mathematics
- 2017 **Goldwater Scholarship**, Goldwater Foundation
- 2017 **Outstanding Undergraduate Student**, ACS DFW
- 2017 **Cyrus Cantrell III Grant**, UTD Phi Kappa Phi
- 2016 **Undergraduate Research Scholar Award**, UTD
- 2014 **Academic Excellence Scholarship**, UTD
- 2014 **Collegium V Honors Program**, UTD

Skills

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| Safety | safe handling of pyrophoric, reactive, and toxic reagents |
| Synthesis | organic and organometallic synthesis, moisture and air sensitive reactions |
| Mechanism | chemical kinetics, calorimetry, reactIR, isotope effects, and linear free energy studies |
| Purification | normal and reverse phase purification (column and preparative HPLC) |
| Spectroscopy | NMR, MassSpec, FTIR, HPLC, transient absorption, UV-Vis, polarimetry, X-ray crystallography |
| Computation | density functional theory, transition state theory, molecular dynamics |
| Programming | python, julia, bash, linux operating system |