Gino Occhialini

Graduate Student · Massachusetts Institute of Technology

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Education

Massachusetts Institute of Technology (MIT) — *Cambridge, MA*
Ph.D. Chemistry (GPA: 5.00/5.00) — *Aug. 2018 - Present*
Advisor: Alison Wendlandt
NSF Graduate Research Fellow

University of Texas at Dallas (UTD) — *Richardson, TX*
B.S. Chemistry (GPA: 4.00/4.00) — *Aug. 2014 - May 2018*
Graduation Honors: Major Honors with Distinction, Summa Cum Laude

Research Experience

Research Assistant — *Cambridge, MA*
Wendlandt Lab, Department of Chemistry, MIT — *Aug. 2018 - present*
Development of light-driven stereo- and positional editing tools
- Internal to terminal positional olefin isomerization
- Pyranoside stereoediting + mechanistic studies
- Terminal selective acceptorless dehydrogenation

Undergraduate Research Assistant — *Richardson, TX*
Smaldone Lab, Department of Chemistry, UTD — *July 2015 - Aug. 2018*
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

Summer Undergraduate Research Fellow — *Dallas, TX*
Siegwart Lab, Simmons Cancer Center, UTSW — *Summer 2016*
Synthesis and characterization of turn-on fluorescent probes for cancer diagnosis and imaging.

Honors & Fellowships

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 Cehmistry
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 Resarch Scholar Award**, UTD
2014 **Academic Excellence Scholarship**, UTD
2014 **Collegium V Honors Program**, UTD

Skills

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

Teaching Experience

Massachusetts Institute of Technology *Cambridge, MA*

Teaching Assistant - Organic Chemistry I (5.12) *Aug. 2018 - May 2019*

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

University of Texas at Dallas *Richardson, TX*

Teaching Assistant - Honors Organic Chemistry I & II (CHEM2327, CHEM2328) *Aug. 2015 - May. 2018*

Teaching Assistant - Anatomy & Physiology I (BIOL3455) *Jan. 2016 - Dec. 2016*

Teaching Assistant - Biochemistry I (3361) *Aug. 2015 - May. 2016*

Selective 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 stereoarrays. *manuscript in review (Science)*

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. *manuscript in review (Nature)*

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