Ph.D.

ANNA L. HAGSTROM

Department of Chemical & Environmental Engineering, Yale University
17 Hillhouse Avenue, New Haven, CT 06511
anna.hagstrom@yale.edu | (315) 271-6978

EDUCATION

Yale University | New Haven, CT — 2013–2018 (expected)
Advisor: Prof. Jaehong Kim
Ph.D. Candidate in Chemical & Environmental Engineering
Dissertation: *Solid-state dual-sensitizer triplet–triplet annihilation upconversion systems for broadband photocatalysis*
M.S. and M.Phil. in Chemical & Environmental Engineering
Cumulative GPA: 3.8

Amherst College | Amherst, MA — 2009–2013
Bachelor of Arts in Chemistry, Magna cum Laude, Phi Beta Kappa
Cumulative GPA: 3.9

Universidad Nacional | Heredia, Costa Rica — Fall 2011

RESEARCH EXPERIENCE

Graduate Research Fellow — Fall 2013–present
Yale University | Advisor: Prof. Jaehong Kim
- Microfluidic synthesis of polymer-shell triplet–triplet annihilation upconversion microcapsules
- Development and characterization of solid-state dual-sensitizer triplet–triplet annihilation upconversion polymer film systems for improved light harvesting under broadband radiation
- Integration of polymer film systems into devices for photovoltaic energy production and photocatalytic degradation of environmental pollutants to enable harvesting of sub-bandgap photons

Undergraduate Research Assistant
Amherst College | Advisor: Prof. Cindy Kan — Aug. 2012–May 2013
- Undergraduate honors thesis in organic chemistry
- Progressed the organic synthetic pathway of the core moiety of natural product lucentamycin A

Penn State | Advisors: Profs. Carsten Krebs, J. Martin Bollinger, Squire Booker — May–Aug. 2012
- NSF Research Experience for Undergraduates
- Cloned gene inserts for a cyanobacterial acyl carrier protein into the pET28a vector, overexpressed within *E. coli* in order to study its role in in cyanobacterial alkane biosynthesis

Hamilton College | Advisor: Prof. Adam Van Wynsberghe — May–July 2011, May–Aug. 2010
- Determined the prevalent conformations of the thrombomodulin binding sites of wild type and mutant thrombin through analysis of molecular dynamics simulations
- Conducted Brownian dynamics simulations using these prevalent binding site conformations in order to study their effect on thrombin–thrombomodulin binding

PUBLICATIONS

Hagstrom, A. L., Deng, F., Kim, J.-H. "Enhanced triplet–triplet annihilation upconversion in dual-sensitizer systems: Translating broadband light absorption to practical solid-state materials." *ACS Photon.* **2017**, *4*, 127–137.

Kim, H.-i., Weon, S., Kang, H., **Hagstrom, A. L.**, Kwon, O. S., Lee, Y.-S., Choi, W., Kim, J.-H. "Plasmon-enhanced sub-bandgap photocatalysis via triplet–triplet annihilation upconversion for volatile organic compound degradation." *Environ. Sci. Technol.* **2016**.

Li, C., Koenigsmann, C., Deng, F., **Hagstrom, A.**, Schmuttenmaer, C. A., Kim, J.-H. "Photocurrent enhancement from solid-state triplet–triplet annihilation upconversion of low-intensity, low-energy photons." *ACS Photon.* **2015**, *3*, 784–790.

SELECTED AWARDS AND HONORS

Top Presentation Award, Robert M. Langer Symposium at Yale University — 2015
NSF Graduate Research Fellowship, National Science Foundation — 2014
Phi Beta Kappa, Amherst College — 2013
David R. Belvetz '54 Memorial Prize, Amherst College chemistry department — 2012
National Merit Scholarship, Amherst College — 2009