

Andy I. Nguyen
4246 SES, Department of Chemistry
University of Illinois at Chicago
Chicago, IL 60607
(949) 433-6367
andyn@uic.edu

Professional Appointments

2020 – present University of Illinois Chicago
Assistant Professor of Chemistry
2016 – 2019 Lawrence Berkeley National Laboratory
Post-Doctoral Fellow (Advisor – Ronald N. Zuckermann)

Education

2010 – 2016 University of California, Berkeley
Ph.D., Inorganic Chemistry (Advisor – T. Don Tilley)
2006 – 2010 University of California, Irvine
B.S. Chemistry, *cum laude* (Advisor – Alan F. Heyduk)

Awards and Honors

2024 Department of Energy – Early Career Research Program (ECRP) Award
2024 National Institute of Health – Maximizing Investigators' Research Award (MIRA)
2021 ACS Petroleum Research Fund – Doctoral New Investigator
2019 Lawrence Berkeley National Laboratory - Safety Spot Award
2016 Materials Postdoc Fellow – Lawrence Berkeley National Laboratory
2012 NSF Graduate Research Fellowship – Honorable Mention
2010 Hertz Fellowship – Finalist
2010 NSF Graduate Research Fellowship – Honorable Mention
2010 University of California, Irvine – Chancellor's Award for Excellence in Undergraduate Research
2010 University of California, Irvine – Honors Award
2009 ACS Orange County Section – Outstanding Chemistry Student
2009 ACS Division of Inorganic Chemistry Undergraduate Award
2009 ACS Division of Organic Chemistry Summer Undergraduate Research Fellowship (SURF) – Sponsor: Pfizer
2008 UCI UROP Grant
2007 CRC Press Chemistry Achievement Award

Manuscripts Published at UIC

- (24) Dang, V. T., Engineer, A., McElheny, D., Drena, A., Telsler, J., Tomczak, K., **Nguyen, A. I.**, *Chem. Eur. J.* online
(23) Ganatra, P., Wang, D. F., Ganatra, V., Dang, V. T., **Nguyen, A. I.** *J. Am. Chem. Soc.* **2024**, *146*, 22236–22246
“Diverse proteomimetic frameworks via rational design of π -stacking peptide tectons”
(22) Vijayakanth, T.*, Dasgupta, S., Ganatra, P., Rencus-Lazar, S., Desai, A. V., Nandi, S., Jain, R., Bera, S., **Nguyen, A. I.***, Gazit, E.*, Misra, R.* *Chem. Soc. Rev.*, **2024**, *53*, 3640-3655.
“Peptide Hydrogen-bonded Organic Frameworks”
(21) Heinz-Kunert, S. L., Pandya, A., Dang, V. T., Oktawiec, J., **Nguyen, A. I.** *Biomacromolecules*, **2024**, *25*, 2016-2023
“Pore restructuring of peptide frameworks by mutations at distal packing residues”
(20) Hess, S.S., Coppola, F., Dang, V. T., Tran, P. T., Mickel, P. J., Oktawiec, J., Ren, Z., Král, P., **Nguyen, A. I.**,* *J. Am. Chem. Soc.* **2023**, *145*, 36, 19588-196000
“Noncovalent peptide assembly enables crystalline, permutable, and reactive thiol frameworks”
(19) Ghosh, S., Tran, P. N., McElheny, D., Perez, J. J., **Nguyen, A. I.** *Inorg. Chem.* **2022**, *61*, 6679-6687.
“Peptidic Scaffolds Enable Rapid and Multivariate Secondary Sphere Evolution for an Abiotic Metallocatalyst”
(18) Heinz-Kunert, S. L.*, Pandya, A.*, Dang, V. T., Tran, P. N., Ghosh, S., McElheny, D., Santarsiero, B. D., Ren, Z., **Nguyen, A. I.**, *J. Am. Chem. Soc.*, **2022**, *144*, 7001–7009. *Equal Contribution
“Assembly of π -Stacking Helical Peptides into a Porous and Multivariable Proteomimetic Framework”
(17) Amtawong, J.; **Nguyen, A. I.**; Tilley, T. D.; *J. Am. Chem. Soc.* **2022**, *144*, 1475-1492.

Manuscripts Published Before UIC

- (16) Wang, S.-T.; Gray, M. A.; Xuan, S.; Lin, Y.; Byrnes, J.; **Nguyen, A. I.**; Todorova, N.; Stevens, M. M.; Bertozzi, C. R.; Zuckermann, R. N.; Gang, O.; *Proc. Natl. Acad. Sci. USA.* **2020**, *117*, 6339-6348.
“DNA Origami Protection and Molecular Interfacing through Engineered Sequence-Defined Peptoids”
- (15) Wijaya, A.*; **Nguyen, A. I.***; Roe, L. T.; Butterfoss, G. L.; Spencer, R. K.; Li, N. K.; Zuckermann, R. N. *J. Am. Chem. Soc.*, **2019**, *141*, 19436-19447. *Equal Contribution
“Cooperative Intramolecular Hydrogen Bonding Strongly Enforces *cis*-Peptoid Folding”
- (14) Amtawong, J.; Balcells, D.; Wilcoxon, J.; Handford, R. C.; Biggins, N.; **Nguyen, A. I.**; Britt, R. D.; Tilley, T. D. *J. Am. Chem. Soc.*, **2019**, *141*, 19859-19859.
“Isolation and Study of Ruthenium-Cobalt Oxo Cubanes Bearing a High-Valent, Terminal Ru^V-Oxo with Significant Oxo Radical Character”
- (13) **Nguyen, A. I.**; Spencer, R. K.; Anderson, C. L.; Zuckermann, R. N. *Chem. Sci.*, **2018**, *9*, 8806-8813.
“A Bio-Inspired Approach to Ligand Design: Folding Single-Chain Peptoid to Chelate a Multimetallic Cluster”
- (12) **Nguyen, A. I.***; Van Allsburg, K. M.*; Terban, M. W.; Bajdich, M.; Oktawiec, J.; Ziegler, M. S.; Dombrowski, J. P.; Lakshmi, K. V.; Drisdell, W. S.; Yano, J.; Billinge S. J. L.; Tilley, T. D. *Proc. Natl. Acad. Sci. USA.* **2019**, *116*, 11630-11639 *Equal contribution
“Stabilization of reactive Co₄O₄ cubane oxygen-evolution catalysts within porous frameworks”
- (11) **Nguyen, A. I.**; Darago, L. E.; Balcells, D.; Tilley, T. D. *J. Am. Chem. Soc.*, **2018**, *140*, 9030-9033.
“Influence of a “Dangling” Co(II) Ion Bound to a [MnCo₃O₄] Oxo Cubane”
- (10) Olshansky, L.; Huerta-Lavorie, R.; **Nguyen, A. I.**; Vallapurackal, J.; Furst, A.; Tilley, T. D.; Borovik, A. S. *J. Am. Chem. Soc.* **2018**, *140*, 2739-2742.
“Artificial Metalloproteins Containing Co₄O₄ Active Sites”
- (9) Wang, S.-T.; Lin, Y.; Spencer, R. K.; Thomas, M. R.; **Nguyen, A. I.**; Amdursky, N.; Pashuck, E. T.; Skaalure, S. C.; Song, C. Y.; Parmar, P. A.; Morgan, R. M.; Ercius, P.; Aloni, S.; Zuckermann, R. N.; Stevens, M. M. *ACS Nano*, **2017**, *11*, 8579–8589.
“Sequence-Dependent Self-Assembly and Structural Diversity of Islet Amyloid Polypeptide-Derived β -Sheet Fibrils”
- (8) **Nguyen, A. I.**; Suess, D. L. M.; Darago, L. E.; Oyala, P. H.; Levine, D. S.; Ziegler, M. S.; Britt, R. D.; Tilley, T. D. *J. Am. Chem. Soc.* **2017**, *139*, 5579-5587.
“Manganese–Cobalt Oxido Cubanes Relevant to Manganese-Doped Water Oxidation Catalysts”
- (7) **Nguyen, A. I.**; Wang, J.; Levine, D. S.; Ziegler, M. S.; Tilley, T. D. *Chem. Sci.* **2017**, *8*, 4274-4284.
“Synthetic control and empirical prediction of redox potentials for Co₄O₄ cubanes over a 1.4 V range: implications for catalyst design and evaluation of high-valent intermediates in water oxidation”
- (6) **Nguyen, A. I.**; Ziegler, M. S.; Oña-Burgos, P.; Sturzbecher-Hohne, M.; Kim, W.; Bellone, D. E.; Tilley, T. D. *J. Am. Chem. Soc.*, **2015**, *137*, 12865-12872.
“Mechanistic Investigations of Water Oxidation by a Molecular Cobalt Oxide Analogue: Evidence for a Highly Oxidized Intermediate and Exclusive Terminal Oxo Participation”
- (5) **Nguyen, A. I.**; Hadt, R. G.; Solomon, E. I.; Tilley, T. D. *Chem. Sci.* **2014**, *5*, 2874-2878.
“Efficient C–H Bond Activations via O₂ cleavage by a Dianionic Co(II) Complex”
- (4) Heyduk, A. F.; Zarkesh, R. A.; **Nguyen, A. I.** *Inorg. Chem.* **2011**, *50*, 9849-9863.
“Designing Catalysts for Nitrene Transfer Using Early Transition Metals and Redox-Active Ligands”
- (3) **Nguyen, A. I.**; Zarkesh, R. A.; Lacy, D. C.; Thorson, M. K.; Heyduk, A. F. *Chem. Sci.*, **2011**, *2*, 166-169.
“Catalytic Nitrene Transfer by a Zirconium(IV) Redox-Active Ligand Complex”
- (2) Blackmore, K. J.; **Nguyen, A. I.**; Heyduk, A. F. *Inorg. Synth.*, **2010**, *35*, 92-96.
“*N*-*tert*-butyl *ortho*-aminophenol, *ortho*-iminoquinone, and a zirconium(IV) bis(aminophenol) complex”
- (1) **Nguyen, A. I.**; Blackmore, K. J.; Carter, S. M.; Zarkesh, R. A.; Heyduk, A. F. *J. Am. Chem. Soc.*, **2009**, *131*, 3307-3316.
“One- and Two- Electron Reactivity of a Tantalum(V) Complex with a Redox-Active Tris(amido) Ligand”

Current, Pending, and Previous Support

Current Support

Source of Support: National Institute of General Medical Sciences
Project Number: R35GM154793-01 (PI: Nguyen)
Title: “In crystallo biomimetic oxygenase chemistry within peptidic frameworks”
Total cost: \$1,913,800
Start and end date: 09/2024 – 08/2029

Source of Support: Department of Energy
Project Number: 0000283299 (PI: Nguyen)
Title: “Enzyme-like porous catalysts for upgrading biomass feedstocks”
Total cost: \$875,000
Start and end date: 10/2024 – 09/2029

Previous Support

Source of Support: American Chemical Society Petroleum Research Fund
Project Number: 62285-DNI (PI: Nguyen)
Title: “Upgrading Small Molecule Catalysts with Peptidic Scaffolds to Tune the Selectivity of C(sp³)-H Oxidation”
Direct cost: \$110,000
Start and end date: 09/2021 – 08/2023

Teaching Experience

Undergraduates mentored – 5 at UIC, 4 during graduate study, 3 during postdoctoral appointment

2020-present	UI Chicago, CHEM 510 – Seminar
2021-present	UI Chicago, CHEM 314 – Undergraduate inorganic chemistry
2020-present	UI Chicago, CHEM 514 – Graduate inorganic chemistry
2015	UC Berkeley, GSI for CHEM 104A – Advanced inorganic chemistry I
2012	UC Berkeley, GSI for CHEM 104A – Advanced inorganic chemistry I
2011	UC Berkeley, GSI for CHEM 104B – Advanced inorganic chemistry II
2010	UC Berkeley, GSI for CHEM 3A – Introductory organic chemistry laboratory

Invited Talks

- (14) ACS Spring National Meeting, March 23-27, 2025, San Diego, CA - INOR: “More than Warriors from Group 14”
- (13) Truman University – November 8, 2024
- (12) 12th Peptoid Summit – August 10, 2024
- (11) 2nd International Conference on Metal-Binding Peptides – Keynote – July 11, 2024
- (10) Washington University in St. Louis – April 6, 2024
- (9) University of California, Irvine – February 12, 2024
- (8) Brandeis University – January 5, 2024
- (7) Molecular Foundry User Meeting, Lawrence Berkeley National Laboratory – August 11th, 2023
- (6) Loyola University – November 17, 2022
- (5) California State University, Chico – December 10, 2021
- (4) ACS Philadelphia – Symposium: Multimetallic Molecular & Extended Platforms for Energy Applications – March 22, 2020 (*Canceled due to COVID-19*)
- (3) University of North Carolina at Chapel Hill – December 19, 2018
- (2) University of Wisconsin at Milwaukee – December 17, 2018
- (1) University of Illinois at Chicago – November 27, 2018

Conference Presentations

- (10) Gordon Research Conference on Metals in Biology, January 2024
- (9) Gordon Research Conference on Peptide Materials, January 2023
- (8) ACS National Meeting, Chicago, Fall 2022
- (7) **Nguyen, A. I.**, Spencer, R. K., Anderson, C. L., Zuckermann, R. N.,
ACS National Meeting, San Diego, August 25-29, 2019
“A Bio-Inspired Approach to Ligand Design: Folding Single-Chain Peptoid to Chelate a Multimetallic Cluster”
- (6) **Nguyen, A. I.**; Wijaya, A.; Spencer, R. K.; Zuckermann, R. N.
Molecular Foundry User Meeting, Berkeley, CA, August 15-16, 2018
“Metal-Coordinating Peptoids as Rationally-Designed Foldamers with Predominantly a Single Conformer”
(Poster)
- (5) **Nguyen, A. I.**; Spencer, R. K.; Zuckermann, R. N.
Gordon Research Seminar on Inorganic Chemistry (GRS), University of New England, Biddeford, ME, June 16-17, 2018
“Carboxylate Chelating Ligands for Multimetallic Clusters” (Poster)
- (4) **Nguyen, A. I.**; Spencer, R. K.; Zuckermann, R. N.
Gordon Research Conference on Inorganic Chemistry (GRC), University of New England, Biddeford, ME, June 17-22, 2018
“Carboxylate Chelating Ligands for Multimetallic Clusters” (Poster)
- (3) **Nguyen, A. I.**; Van Allsburg, K. M.; Terban, M. W.; Bajdich, M.; Oktawiec, J.; Ziegler, M. S.; Dombrowski, J. P.; Lakshmi, K. V.; Drisdell, W. S.; Yano, J.; Billinge S. J. L.; Tilley, T. D.
253rd ACS National Meeting, San Francisco, CA, April 2-6, 2017.
“Tunable, site-isolated Co₄O₄ oxygen-evolution catalysts in porous frameworks” (Talk)
- (2) **Nguyen, A. I.**; Suess, D. L. M.; Darago, L. E.; Levine, D. S.; Britt, R. D.; Tilley, T. D.
251st ACS National Meeting, San Diego, CA, March 13-17, 2016.
“Synthesis and electronic description of tetra- and pentametallic, mixed-metal, mixed-valent manganese-cobalt oxido cluster” (Poster)
- (1) **Nguyen, A. I.**; Hadt, R. G.; Solomon, E. I.; Tilley, T. D.
248th ACS National Meeting, San Francisco, CA, August 10-14, 2014.
“O₂ cleavage by a square-planar dianionic cobalt(II) complex: Putative Co-oxo formation” (Talk)

Service

- Grant reviewer for Department of Energy - Basic Energy Sciences
- Faculty Advisor for the Chemistry Graduate Student Association (CGSA) at UIC
- Presider for the “Bioinorganic Chemistry: Proteins & Enzymes & Model Systems” Symposium 2022 ACS National Meeting in Chicago
- Judge for Chicago Area Undergraduate Research Symposium (2022)
- Reviewer for *Journal of the American Chemical Society*, *Inorganic Chemistry*, *Chemistry Communications*, *Biomacromolecules*, *Tetrahedron Letters*, *ACS Applied Materials and Interfaces*
- Presider for the “Environmental and Energy-Related Inorganic Chemistry” Symposium at the 253rd ACS National Meeting in San Francisco
- On the committee for Student-Hosted Seminars at UC Berkeley
- Laboratory manager in the Zuckermann group at Lawrence Berkeley National Laboratory