

Andy I. Nguyen
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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

2025 National Science Foundation – CAREER Award
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., Telser, 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

- (19) “Noncovalent peptide assembly enables crystalline, permutable, and reactive thiol frameworks”
Ghosh, S., Tran, P. N., McElheny, D., Perez, J. J., **Nguyen, A. I.** *Inorg. Chem.* **2022**, *61*, 6679-6687.
- (18) “Peptidic Scaffolds Enable Rapid and Multivariate Secondary Sphere Evolution for an Abiotic Metallocatalyst”
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
- (17) “Assembly of π -Stacking Helical Peptides into a Porous and Multivariable Proteomimetic Framework”
Amtawong, J.; **Nguyen, A. I.**; Tilley, T. D.; *J. Am. Chem. Soc.* **2022**, *144*, 1475-1492.
- “Mechanistic Aspects of Cobalt Oxo Cubane Clusters in Oxidation Chemistry”

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 Science Foundation

Project Number: 2440121 (PI: Nguyen)

Title: “Design of Protein-like Materials from pi-Conjugated Peptides”

Total cost: \$749,999

Start and end date: 3/2025 – 02/2030

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: 7/2024 – 08/2029

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

- (18) Iowa State University – April 18, 2025
- (17) University of Pittsburg – February 4, 2025
- (16) ACS Spring National Meeting, March 23-27, 2025, San Diego, CA - INOR: “More than Warriors from Group 14”
- (15) Colorado School of Mines – January 17, 2025
- (14) Texas A&M University – November 14, 2024
- (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