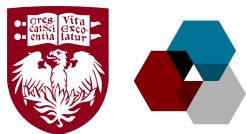


Matthew T. Pham (He/Him/His)

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Profiles & Links [Linkedin](#)
[Google Scholar](#)
[GitHub](#)
[Personal Website](#)

Education

- 2021 - Present** Ph.D. Molecular Engineering – University of Chicago, Chicago, Illinois
(Expected 2026) Advisors: Dr. Marco Govoni and Professor Giulia Galli
- 2017 - 2021** B.S. Physics – Iowa State University, Ames, Iowa
Magna Cum Laude
Cumulative GPA: 3.87/4.0
Major GPA: 3.97/4.0
- 2016 - 2017** High School Dual Enrollment – Scott Community College, Riverdale, Iowa
Transfer GPA: 3.93/4.0
Total Credit Hours: 29
- 2013 - 2017** High School Diploma – Assumption High School, Davenport, Iowa
Summa Cum Laude
Cumulative GPA: 3.95/4.0

Experience

- Mar. 2022 - Present** - [Computational Materials Group](#) - Argonne National Laboratory
Graduate Student Researcher
Advised by Dr. Marco Govoni and Professor Giulia Galli. Utilized density functional theory to study materials and defects for applications in quantum information science.
- Oct. 2020 - Sep. 2021** - [Davit Potoyan Group](#) - Department of Chemistry, Iowa State University
Undergraduate Research
Studied properties of liquid-liquid phase separated protein-RNA condensates using molecular dynamics simulations (HOOMD-Blue). Developed Python libraries for designing, running, and analyzing simulations to better understand the formation, stability, and dynamic properties of biomolecular condensates.

May 2019 - [Alex Travesset Group](#) - Department of Physics & Astronomy, Iowa State University

Dec. 2020 *Undergraduate Research*

Studied substrate supported gold nanoparticles capped with hydrocarbon ligands. Analyzed the role of nanoparticle-nanoparticle and nanoparticle-substrate interactions in superlattice self-assembly.

May 2020 - [U.S. DOE Ames National Laboratory SULI Summer 2020 Internship](#)

July 2020 *Summer Research Internship*

Advised by Alex Travesset. Extended research of nanoparticle-substrate interactions by focusing on many nanoparticle systems. Analyzed many-body effects of substrate supported nanoparticle pairs, clusters, and superlattices relative to free-floating assemblies. Compared the effects of core anisotropy in nanoparticle orientation in presence and absence of supporting substrate.

Publications

3. Laghmach, R., Alshareedah, I., **Pham, M.**, Raju, M., Banerjee, P.R., Potoyan, D.A. "RNA chain length and stoichiometry govern surface tension and stability of protein-RNA condensates." *iScience*. (2022). DOI:10.1016/j.isci.2022.104105
2. Alshareedah, I., Moosa, M.M., **Pham, M.**, Potoyan, D.A., Banerjee, P.R. "Programmable viscoelasticity in protein-RNA condensates with disordered sticker-spacer polypeptides." *Nature Communications*. **12**, 6620 (2021). DOI: 10.1038/s41467-021-26733-7
1. **Pham, M.** and Travesset, A. "Ligand Structure and Adsorption Free Energy of Nanocrystals on Solid Substrates." *Journal of Chemical Physics*. **153**, 204701 (2020). DOI: 10.1063/5.0030529

Presentations & Conferences

29 July 2020 [Many-Body Effects of Substrate Supported Nanoparticles \(Poster/Virtual\)](#)

Ames, Iowa U.S. DOE Ames Lab SULI Summer Poster Presentations

4 March 2020 [Ligand Structure and Free Energy of Nanoparticles on Substrates](#)

Denver, Colorado American Physical Society (APS) March Meeting 2020

Teaching Experience

Jan. 2021 - [Teaching Assistant](#) - Department of Physics & Astronomy, Iowa State University

May 2021 *Undergraduate Teaching Assistant*

Teaching assistant and grader for PHYS 481: Quantum Mechanics II taught by Professor Mayly Sanchez at Iowa State University during Spring of 2021. Hosted weekly office hours and graded homework assignments.

Software, Tools, & Applications

Programming Languages: Python, C++, & R

Operating Systems: Linux (Ubuntu, Manjaro/Arch, RedHat/CentOS) & Windows

Software & Tools: MatLab, Mathematica, Git, Inkscape, \LaTeX & Overleaf

Honors & Awards

Spring 2021 *Lassahn Scholarship in Physics*
Department of Physics & Astronomy – Iowa State University

Spring 2020 *Danielson Award for Academic Excellence*
Department of Physics & Astronomy – Iowa State University

Spring 2020 Φ BK – *Phi Beta Kappa Honor Society Induction*
Zeta Chapter – Iowa State University

2017 - 2021 *LAS Dean's List (8 semesters)*
College of Liberal Arts & Sciences – Iowa State University

Fall 2017 *George Washington Carver Scholar (Full Tuition Scholarship)*
Multicultural Student Association – Iowa State University

Academic & Professional Societies

2019 - Present American Physical Society (APS)
Division of Soft Matter (DSOFT)

2020 - Present Φ BK – Phi Beta Kappa Honor Society

Extracurriculars

2018 - 2021 Senior Public Relations Char
Ames Collegiate Chess Club – Iowa State University

Helped organize outreach and fundraising events including pizza sales, informational presentations, and state-open tournaments. Annually ran four chess tournaments, two United States Chess Federation (USCF) rated tournaments and two casual unrated tournaments. Coordinated with the Iowa State Chess Association (IASCA) and other chess clubs associated with universities in Iowa to setup tournaments to be included in the state championship qualifier other and collegiate events.

Certificates

January 2022 Introduction to Machine Learning
Issuer: Coursera
Certificate ID: [P529MV4M3DR7](#)

Coursework

† — Graduate Course

■ Computer/Data Science, Computation, & Applications

MENG 35620[†] – Applied Artificial Intelligence for Materials Science & Engineering
MSE 582X[†] – Machine Learning & Data Analytics for Materials Research
STAT 31100[†] – Numerical Methods for Partial Differential Equations
IE 420 – Engineering Problem Solving with R
COM S 227 – Object Oriented Programming

■ Molecular Engineering

MENG 35500[†] – Classical Materials & Molecular Modeling
MENG 31200[†] – Thermodynamics & Statistical Mechanics
MENG 31300[†] – Transport Phenomena
MENG 31100[†] – Math Methods in Molecular Engineering
MENG 35100[†] – Introduction to Polymer Science

■ Physics

PHYS 528[†] – Mathematical Methods for Physical Sciences
PHYS 511[†] – Condensed Matter Physics
PHYS 480/481 – Quantum Mechanics I & II
PHYS 364/365 – Electricity & Magnetism I & II
PHYS 361/362 – Classical/Intermediate Mechanics
PHYS 304 – Thermal Physics
PHYS 321/322 – Modern Physics I & II with Labs
PHYS 311 – Independent Intermediate Lab (Sonoluminescence)
PHYS 310 – Electronic Instrumentation & Lab

■ Mathematics

MATH 385 – Partial Differential Equations
MATH 267 – Differential Equations & Laplace Transforms
MATH 265 – Calculus III
MATH 207 – Matrices & Linear Algebra

■ Chemistry & Biology

CHEM 331 – Organic Chemistry & Lab
CHEM 301 – Inorganic Chemistry
BIO 314 – Molecular Cell Biology
BIO 255/256 – Human Anatomy & Physiology with Labs

■ Communication

ENG 314 – Technical Communication
SP CM 104 – Public Speaking