Thi D. Vo

tvo12@jhu.edu vogroup.wse.jhu.edu

Assistant Professor | Chemical and Biomolecular Engineering
Whiting School of Engineering
Johns Hopkins University

Education and Training

University	Degree	Advisor	Graduation Year
Columbia University	MS, PhD Chemical Engineering	Sanat K. Kumar	October 2017
Rice University	BS, Chemical Engineering BS, Biochemistry and Cell Biology	Walter G. Chapman	May 2012

Professional Experience

University	Position	Duration
University of Michigan – Ann Arbor	Postdoctoral Research Fellow Advisor: Sharon C. Glotzer	October 2017 - June 2022

Mentoring and Teachings

Teaching Assisstant: *Numerical Methods for Chemical Engineers.* Dr. Kyriacos Zygourakis, Rice University (2011)

Rice University Academic Fellow: *Physics, Chemistry, Biology, Calculus, Programming.* Tutoring (2010 - 2012)

Teaching Assisstant: *Analysis of Chemical Engineering Problem I & II.* Dr. Vanessa Ortiz, Columbia Unversity (2012-2013)

Graduate Student Mentoring (during time as postdoc with Sharon C. Glotzer):

- William Zygmunt: Chemical Engineering, University of Michigan, PhD 2020
- Vyas Ramasubramani: Chemical Engineering, University of Michigan, PhD 2020
- Luis Rivera-Rivera: Chemical Engineering, University of Michigan, PhD 2022
- Kristi Pepa: Chemical Engineering, University of Michigan, currently 3rd year graduate student
- Shiqi Zhao: Chemical Engineering, University of Michigan, currently 3rd year graduate student
- Tommy Waltmann: Physics, University of Michigan, currently 3rd year graduate student
- Alain Kadar: Chemical Engineering, University of Michigan, currently 2nd year graduate student
- Issac Spivack: Physics, University of Michigan, currently 2nd year graduate student
- Trevor Teague: Chemical Engineering, University of Michigan, currently 1st year graduate student

Awards

National Science Foundation Graduate Fellow (2014 - 2017)

Dwaine E. Rivers Scholarship (2010)

Rice University Class of 1930 Scholarship (2008 - 2012)

Skills

Simulation/Programs: MATLAB, LAMMPS, HOOMD, VESTA, Schrodinger, MCCCS Towhee, ABINIT

Experiment: DNA sequencing, Mutagenesis, Protein cloning, Gel electrophoresis, High performance liquid chromatography (HPLC), Affinity chromatography, Ion Exchange chromatography

Programming Languages: C, C++, Python, FORTRAN, TCL

Publications

Published or Submitted [* denotes corresponding author, # denotes equal contribution]

1). Babji Srinivasan, Thi Vo, Yugang Zhang, Oleg Gang, Sanat Kumar*, Venkat Venkatasubramanian*. "Designing DNA-grafted particles that self-assemble into desired crystalline structures using the genetic algorithm." **PNAS**, 2013, *110*.

2). Thi Vo, Venkat Venkatasubramanian, Sanat Kumar*, Babji Srinivasan, Suchetan Pal, Yugang Zhang, Oleg Gang. "Stoichiometric control of DNA-grafted colloid self-assembly." **PNAS**, 2015, *112*.

3). Yugang Zhang, Suchetan Pal, Babji Srinivasan, Thi Vo, Sanat Kumar, Oleg Gang*. "Selective transformations between nanoparticle superlattices via the reprogramming of DNA-mediated interactions." **Nature Materials**, 2015, *14*.

4). Fang Lu#, Thi Vo#, Yugang Zhang#, Alex Frenkel, Kevin G. Yager, Sanat Kumar*, Oleg Gang*. "Unusual packing of soft-shelled nanocubes," **Science Advances**, 2019, *5*.

5). Thi Vo, Sharon Glotzer*. "Principle of corresponding states for hard polyhedron fluids," **Molecular Physics**, 2019, *117*.

6). Katherine C. Elbert#, Thi Vo#, Nadia M. Krook, William Zygmunt, Jungmi Park, Kevin G. Yager, Russell J. Composto, Sharon C. Glotzer*, Christopher B. Murray*. "Dendrimer ligand directed nanoplate assembly," **ACS Nano**, 2019, *13*.

7). Ye Tian, Julien Lhermitte, Lin Bai, Thi Vo, Huolin Xin, Ruipeng Li, Masafumi Fukuto, Kevin Yager, Sanat Kumar, Oleg Gang*. "Ordered three-dimensional nanomaterials using DNA-prescribed and valence-controlled material voxels," **Nature Materials**, 2020, *19*. [cover article]

8). Vyas Ramasubramani, Thi Vo, Joshua A. Anderson, Sharon C. Glotzer*. "A mean-field approach to simulating anisotropic particles," **Journal of Chemical Physics**, 2020, *153*.

9). Katherine C. Elbert#, William Zygmunt#, Thi Vo#, Corbin M. Vara, Daniel J. Rosen, Nadia M. Krook, Sharon C. Glotzer*, Christopher B. Murray*. "Anisotropic nanocrystal shape and ligand design for co-assembly," **Science Advances**, 2021, *7*.

10). Lanqin Tang#, Thi Vo#, Xiaoxing Fang, Drew Vecchio, Tao Ma, Jun Lu, Harrison Hou, Sharon C. Glotzer*, Nicholas A. Kotov*. "Self-assembly mechanism of complex corrugated particles," **JACS**, 2021, *143*. [cover article]

11). Thi Vo and Sharon C. Glotzer*. "A theory of entropic bonding," **PNAS**, 2022, *119*.

12). Katherine C. Elbert#, Thi Vo#, Deborah Oh, Harshit Bharti, Sharon C. Glotzer*, and Christopher B. Murray*. "Evaporation-driven coassembly of hierarchical, multicomponent networks." **ACS Nano**, 2022, *16*.

13). Sophia Y. Chan, Mayank Jhalaria, Yucheng Huang, Ruipeng Li, Brian C. Benicewicz, Christopher J. Durning, Thi Vo*, Sanat K. Kumar*. "Local structure of polymer-grafted nanoparticle melts." **ACS Nano**, 2022, *16*.

14). Ahyoung Kim#, Thi Vo#, Hyosung An , Progna Banerjee , Lehan Yao , Shan Zhou , Chansong Kim , Delia Milliron, Sharon C. Glotzer*, Qian Chen*. "Symmetry-breaking in patch formation on gold nanoparticles via supramolecular bandwagoning." *In Revision*, **Nature Nanotechnology**.

15). Sangmin Lee, Thi Vo, Sharon C. Glotzer*. "Entropy compartmentalization stabilizes open host-guest colloidal clathrates." *In Revision*, **Nature Chemistry**.

16). Prashant Kumar, Thi Vo, Minjeong Cha, Anastasia Visheratina, Ji-Young Kim, Wenqian Xu, Jonathan Schwartz, Alexander Simon, Daniel Katz, Emanuele Marino, Won Jin Choi, Si Chen, Christopher Murray, Robert Hovden, Sharon Glotzer*, Nicholas A. Kotov*. "Photonically active bowtie nanoassemblies with chirality continuum." *In Revision*, **Nature**.

17). Vyas Ramasubramani, Thi Vo, Joshua A. Anderson, Sharon C. Glotzer*. "Shape-driven caging dynamics of hard polygons," *Under Review*, **Journal of Chemical Physics**.

Conference Presentations

Thi Vo, Sanat Kumar. "Quantitative Modeling Of DNA Grafted Nanoparticle Self-Assembly." *Programmable Self-Assembly of Matter,* 2012. **(Poster)**

Thi Vo, Sanat Kumar, Oleg Gang. "Modeling and Inverse Design Of DNA-Grafted Nanoparticle Self-Assembly." *Materials Genome Initiative - Principal Investigator Meeting,* 2013. **(Poster)**

Thi Vo, Babji Srinivasan, Sanat Kumar, Oleg Gang, Venkat Venkatasubramanian. "Quantitative Modeling of DNA Grafted Nanoparticle Self-Assembly." *AIChE - Annual Meeteing,* 2013. **(Oral Presentation)**

Thi Vo, Sanat Kumar, Oleg Gang. "Modeling of DNA-Mediated Self-Assembly." *NYC Intercollegiate Chemistry and Chemical Engineering Conference,* 2014. **(Poster)**

Thi Vo, Sanat Kumar, Oleg Gang. "Design of DNA-Grafted Building Blocks Self-Assembly." *Materials Genome Initiative - Principal Investigator Meeting,* 2015. **(Poster)**

Thi Vo, Venkat Venkatasubramanian, Sanat Kumar, Babji Srinivasan, Suchetan Pal, Yugang Zhang, Oleg Gang. "Stoichiometric Control of DNA-Grafted Colloid Self-Assembly." *APS - March Meeting,* 2015. **(Oral Presentation)**

Thi Vo, Sanat Kumar. "Anisotropic Corona Driven Nanoparticle Self-Assembly." *Gordon Research Conference - Polymer Physics,* 2016. **(Poster)**

Thi Vo, Fang Lu, Yugang Zhang, Oleg Gang, Sanat Kumar. "Anisotropic Packing of DNA-Mediated Colloidal Self-Assembly." *APS - March Meeting,* 2016. **(Oral Presentation)**

Thi Vo, Fang Lu, Yugang Zhang, Oleg Gang, Sanat Kumar. "DNA Base Pairing Driven Self-Assembly of Non-Spherical Nanoparticles." *Foundations of Nanoscience Meeting,* 2016. **(Oral Presentation)**

Thi Vo, Sanat Kumar. "Predictive Modeling of the Assembly of DNA Grafted Non-Spherical Building Blocks ." *MRS - Fall Meeting,* 2016. **(Oral Presentation)**

Thi Vo, Ye Tian, Oleg Gang, Sanat Kumar. "Predictive Modeling and Design of Corona Driven Self-Assembly." *APS - March Meeting,* 2017. **(Oral Presentation)**

Thi Vo, Fang Lu, Yugang Zhang, Oleg Gang, Sanat Kumar. "Corona Driven Orientational Control of Grafted Nanoparticle Self-Assembly." *APS - March Meeting,* 2018. **(Oral Presentation)**

Thi Vo and Sharon Glotzer. "A Universal Equation of State for Hard Polyhedra." *APS - March Meeting,* 2019. **(Oral Presentation)**

Thi Vo and Sharon Glotzer. "A Universal Equation of State for Hard Polyhedra." *Gordon Research Conference - Chemistry and Physics of Liquids,* 2019. **(Poster Presentation)**

Thi Vo and Sharon Glotzer. "A Universal Equation of State for Hard Polyhedra." *AIChE - Annual Meeting,* 2019. **(Oral Presentation)**

Thi Vo, Katherine C. Elbert, Nadia M. Krook, William E. Zygmunt, Jungmi Park, Kevin G. Yager, Russell J. Composto, Sharon C. Glotzer, and Christopher B. Murray. "Predictive Modeling of Dendrimer Directed Nanoparticle Self-Assembly." *APS - March Meeting,* 2020. **(Oral Presentation)**

Thi Vo, Sharon C. Glotzer. "A Microscopic Theory of Entropic Bonding for Colloidal Crystal Prediction." *AIChE - Annual Meeting*, COMSEF Faculty Candidate Session, 2020. **(Oral Presentation)**

Thi Vo, Sharon C. Glotzer. "Leveraging Shape as a Handle for Materials Design." *Statistical Thermodynamics and Molecular Simulations Seminar Series*, 2021. **(Invited, Oral Presentation)**

Thi Vo, Katherine C. Elbert, William Zygmunt, Corbin Vera, Daniel Rosen, Nadia Krook, Sharon C. Glotzer, and Christopher B. Murray. "Anisotropic Nanocrystal Shape and Ligand Design for Co-Assembly." *APS - March Meeting*, 2021. **(Oral Presentation)**

Thi Vo, Katherine C. Elbert, Deborah Oh, Harshit Bharti, Sharon C. Glotzer, and Chrisotpher B. Murray. 'Evaporation Driven Assemblies of Hierarchical, Multi-Component Networks." *AIChE - Annual Meeting*, COMSEF Faculty Candidate Session, 2021. **(Oral Presentation)**

Thi Vo, Vyas Ramasubramani, Joshua A. Anderson, Sharon C. Glotzer. "Brownian Dynamics of Anisotropic Particles." *AIChE - Annual Meeting*, 2021. **(Oral Presentation)**

Thi Vo, Katherine C. Elbert, William Zygmunt, Corbin Vera, Daniel Rosen, Nadia Krook, Sharon C. Glotzer, and Christopher B. Murray. "Anisotropic Nanocrystal Shape and Ligand Design for Co-Assembly." *AIChE - Annual Meeting*, 2021. **(Oral Presentation)**

Thi Vo, Lanqin Tang, Xiaoxing Fang, Drew Vecchio, Tao Ma, Jun Lu, Harrison Hou, Sharon C. Glotzer, Nicholas A. Kotov. "Self-Assembly Mechanism of Hedgehog Particles." *APS - March Meeting*, 2022. **(Oral Presentation)**

Thi Vo, Ahyoung Kim, Qian Chen, and Sharon C. Glotzer. "Design and Assembly of Symmetry Breaking, Patchy Polymeric Grafts." *Gordon Research Conference - Polymer Physics*, 2022. **(Poster Presentation)**