Vida Jamali

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Academic Position

Georgia Institute of Technology Aug 2022-present
School of Chemical and Biomolecular Engineering, Assistant Professor

University of California, Berkeley Dec 2017-Aug 2022
Department of Chemistry, Kavli Energy NanoScience Institute, Postdoctoral Researcher
Advisor: **A. Paul Alivisatos**

Education

Rice University, Houston, TX 2017
Ph.D. in Chemical and Biomolecular Engineering, GPA: 4.03/4
Advisor: **Matteo Pasquali**
Thesis: Morphology of Carbon Nanotube Liquid Crystalline Solutions: Insights into Tactoids and Columnar Phase
Committee: Paul van der Schoot, S. Lisa Biswal, Fred C. MacKintosh

Sharif University of Technology, Tehran, Iran 2011
B.Sc. in Chemical Engineering

Honors and Awards

Rising Stars in Soft and Biological Matter, selected by the University of Chicago MRSEC (2021)
Berkeley Postdoctoral Association Professional Development Award (2021)
AIChE Women In Chemical Engineering Travel Award (2020)
Princeton University and University of Delaware Future Faculty in Soft Matter Workshop (2019)
American Chemical Society P2F Future Faculty Scholar (2019)
Society of Rheology Student Travel Award (2017)
Active and Smart Matter Conference Travel Award (2016)
Smalley-Curl Institute Travel Award (2016): Annual SCI Transdisciplinary Symposium
Society of Iranian-American Women for Education (SIAWE) Scholarship (2016)
ConocoPhillips Endowed Scholarship (2014)
Phi Lambda Upsilon Honor Society (2014)
NASA Space Health Innovation Challenge hackathon Finalist (2013): Awarded and organized by NASA
Ignite Silicon Valley Trek Travel Award (2013): Rice Alliance for Technology and Entrepreneurship
Best Teaching Assistant Award (2012): Department of Chemical and Biomolecular engineering
Screech Elevator Pitch Competition People's Choice Award (2012): Rice Center for Engineering Leadership

Peer Reviewed Publications (* denotes equal contribution, † denotes corresponding author)

- **Jamali, V.**†, Alivisatos, A. P.†, "Recent advances in the study of colloidal nanocrystals enabled by in situ liquid phase transmission electron microscopy". *Microscopy and Microanalysis* 28, 142 - 143 (2022).
- Moreno-Hernandez, I. A.*, Crook, M. F.,* **Jamali, V.***, Alivisatos, A. P., "Recent advances in the study of colloidal nanocrystals enabled by in situ liquid phase transmission electron microscopy". *MRS Bulletin* 47, (2022).
- Abbas, A., Vargo, E., **Jamali, V.**, Ercius, P., Pieters, P., Brinn, R., Ben-Moshe, A., Cho, M., Xu, T., Alivisatos, A. P. "Observation of an orientational glass in a superlattice of elliptically-faceted CdSe nanocrystals". *ACS Nano* (2022).

- **Jamali, V.**, Hargus, C., Ben Moshe A., Aghazadeh, A., Ha, H. D., Mandadapu, K. K., Alivisatos, A. P. "Deep learning-assisted liquid cell electron microscopy reveals the nature of anomalous diffusion of nanoparticles near the surface". *Proceedings of National Academy of Sciences (PNAS)* 118 (10) (2021).

- **Jamali, V.**, Mirri, F., Biggers, E. G., Pinnick, R.A., Liberman, L., Cohen, Y., Talmon, Y., MacKintosh F., van der Schoot, P., Pasquali, M. "Enhanced ordering in length-polydisperse carbon nanotube solutions at high concentrations as revealed by the small angle X-ray scattering". *Soft Matter* 17, 5122-5130 (2021).

  Featured on the front cover of Soft Matter, Issue 20.

- Cho, H., Moreno-Hernandez, I., **Jamali, V.**, Oh, M., Alivisatos, A. P. "In situ quantification of interactions between charged nanorods in a predefined potential energy landscape". *Nano Letters* 21 (1), 628-633 (2021).

- **Jamali, V.***, Niroui, F.*, Taylor, L. W., Dewey, O. S., Koscher, B. A., Pasquali, M., Alivisatos, A. P. "Perovskite-carbon nanotube light emitting fibers". *Nano Letters* 20 (5), 3178-3184 (2020).

- Liberman, L., **Jamali, V.**, Pasquali, M., Talmon, Y. "The effect of carbon nanotube diameter and stiffness on their phase behavior in crowded solutions". *Langmuir* 36 (1), 242-249 (2020).

- Mirri, F.*, Ashkar, R.*, **Jamali, V.**, Liberman, L., Pinnick, R., Talmon, Y., van der Schoot, P., Butler, P., Pasquali, M. "Quantification of carbon nanotube liquid crystal morphology via neutron scattering". *Macromolecules* 51 (17), 6892-6900 (2018).

- Maillaud, L., Headrick, R. J., **Jamali, V.**, Maillaud, J., Tsentalovich, D., Neri, W., Bengio, E. A., Mirri, F., Kleinerman, O., Talmon, Y., Poulin, P., and Pasquali, M., "Flexible and conductive fibers made from highly concentrated aqueous dispersions of carbon nanotubes". *Industrial and Engineering Chemistry Research* 57 (10), 3554-3560 (2018).

- Tran, T. Q., Headrick, R. J., Bengio, E. A., Myint, S. M., Khoshnevis, H., **Jamali, V.**, Duong, H. M., Pasquali, M. "Purification and dissolution of carbon nanotube fibers spun from floating catalyst method". *ACS Materials and Interfaces* 9 (42), 37112-37119 (2017).

- **Jamali, V.**, Biggers, E., van der Schoot, P., Pasquali, M. "Line tension of twist-free carbon nanotube lyotropic liquid crystal microdroplets on solid surfaces". *Langmuir* 33 (36), 9115-9121 (2017).

- Jiang, C., Peng, Z., de los Reyes, C., Young, C. C., Tsentalovich, D., **Jamali, V.**, Ajayan, P. M., Tour, J. M., Pasquali, M., and Marti A. A., "Increased solubility and fiber spinning of graphenide dispersions aided by crown-ethers". *Chemical Communications* 53 (9), 1498-1501 (2016).

- **Jamali, V.***, Behabtu, N.*, Senyuk, B., Lee J. A. Smalyukh, I., van der Schoot, P., Pasquali, M. "Experimental realization of crossover in shape and director field of nematic tactoids". *Physical Review E* 91 (4), 042507 (2015).

Manuscripts In Preparation

- Aikawa, A.*, **Jamali, V.***, Tang, E., Liou, F., Tsai, H. Z, Alivisatos, A. P., Crommie, M. "Tunable ergodicity of molecular adsorbates on moire superlattices with substrate energy landscape engineering". In preparation-Draft available upon request.

Grant Proposals Writing Experience

NSF-CBET, lead writer, funded for $156k
(PI: A. Paul Alivisatos, Co-PI: Kranthi Mandadapu) June 2020
EAGER: Towards molecular scale resolution in studies of the anomalous motion of nanoparticles using liquid phase EM

NSF-DMR co-writer, later used as the basis for a successful Welch foundation proposal
(PI: Matteo Pasquali, Co-PIs: Fred MacKintosh, Yeshahayu Talmon) Nov 2016
Nanotube-based soft conductors with tunable mechanical properties

AFRL/AFOSR co-writer, funded for $800k
(PI: Matteo Pasquali) Oct 2014
Soft, lightweight, multi-functional conductors from fullerene carbon nanotubes

Patents

Alivisatos A.P., Niroui, F., Jamali, V., Pasquali M., "Light emitting fibers", USSN 62/714,561
Alivisatos A.P., Jamali, V., "Processing method for fabricating perovskite-carbon nanotube fibers and devices", USSN 62/958,394

Selected Talks and Presentations

Deep Learning-Assisted Analysis of Anomalous Nanoparticle Surface Diffusion in Liquid Phase TEM (Invited)
LPTEM Gordon Research Conference, Ventura, CA. Oct 2022
Studying diffusion of colloidal nanoparticles in solution using liquid phase TEM and machine learning (Invited)
Microscopy and Microanalysis Conference, Portland, OR. Aug 2022
Imaging, learning, and engineering of soft matter systems at the nanoscale (Invited)
University of Southern California, Department of Chemical Engineering and Materials Science, Los Angeles, CA. Mar 2022
Massachusetts Institute of Technology, Department of Chemical Engineering, Cambridge, MA. Feb 2022
Brandeis University, MRSEC, Waltham, MA. Feb 2022
University of Minnesota, Department of Chemical Engineering and Materials Science, Minneapolis, MN. Feb 2022
University of Wisconsin-Madison, Department of Chemistry, Madison, WI. Feb 2022
University of California Los Angeles, Department of Chemistry and Biochemistry, Los Angeles, CA. Feb 2022
Yale University, Department of Chemical and Environmental Engineering, New Heaven, NH. Feb 2022
Cornell University, Department of Chemistry and Chemical Biology, Ithaca, NY. Jan 2022
Princeton University, Department of Chemical and Biological Engineering, Princeton, NJ. Jan 2022
Georgia Institute of Technology, School of Chemical and Biomolecular Engineering, Atlanta, GA. Jan 2022
University of California Berkeley, Kavli Energy NanoScience Institute, Berkeley, CA. Dec 2021

Deep Learning-Assisted Analysis of Anomalous Nanoparticle Surface Diffusion in Liquid Phase TEM
AIChE Annual Meeting, Boston, MA. Nov 2021

Imaging, learning, and engineering of complex soft matter systems at the nanoscale
Rising Stars in Soft and Biological Matter Symposium, University of Chicago MRSEC (virtual). Sep 2021

Deep learning-assisted analysis of anomalous nanoparticle surface diffusion in liquid phase TEM (invited)
University of California Berkeley, Nano Seminar Series, Berkeley, CA. Sep 2021

Imaging, learning, and engineering of complex soft matter systems at the nanoscale (Invited)
Seagate Normandale AI/ML Distinguished Seminar Series, Bloomington, MN (virtual). Jul 2021

Deep learning-assisted analysis of anomalous nanoparticle surface diffusion in liquid phase TEM
ACS Colloid & Surface Science Symposium (virtual). Jun 2021

Deep learning-assisted analysis of anomalous nanoparticle diffusion near the liquid cell surface reveals the effect of electron beam dose rate in TEM
AIChE Annual Meeting, Boston, MA. Nov 2021

Deep learning-assisted analysis of anomalous nanoparticle diffusion near the liquid cell surface reveals the effect of electron beam dose rate in TEM
American Physical Society (virtual). Mar 2021

In-situ liquid phase electron microscopy for studying the dynamics of colloidal nanoparticles at the nanoscale
AIChE Annual Meeting, San Francisco, CA (virtual, available online). Nov 2020

From nanoscale building blocks to functional fibers
AIChE Annual Meeting, Orlando, FL. Nov 2019

From carbon nanotube liquid crystalline solutions to functional fibers (Invited)
Department of Physics, Physics of Living Systems, MIT, Cambridge, MA. Nov 2018

Colloidally synthesized nanomaterials as building blocks for functional fibers
MRS Fall Meeting, Boston, MA. Nov 2018

From carbon nanotube liquid crystalline solutions to functional fibers
AIChE Annual Meeting, Pittsburgh, PA. Oct 2018

Morphology of carbon nanotube liquid crystalline phases: insight into tactoids and columnar phase (Invited)
APS March Meeting, Los Angeles, CA. Mar 2018

A hexagonal columnar liquid crystal phase formation in dilute solutions of carbon nanotubes
AIChE Annual Meeting, Minneapolis, MN. Oct 2017

Phase behavior and morphology of carbon nanotube liquid crystal solutions
88th Society of Rheology Conference, Tampa, FL. Feb 2017

Phase behavior and morphology of carbon nanotube liquid crystal solutions (Invited)
Lewis-Sigler Integrative Genome Institute, Biophysics group, Princeton, NJ. Feb 2017

Morphology of carbon nanotube liquid crystal solutions
AIChE Annual Meeting, San Francisco, CA. Nov 2016

Wetting behavior, shape, and morphology of sessile lyotropic liquid crystal microdroplets
ACS Colloid & Surface Science Symposium, Harvard University, Cambridge, MA. Jun 2016

Wetting behavior, shape, and morphology of sessile lyotropic liquid crystal microdroplets (Poster)
Active and Smart Matter Conference, Syracuse University, Syracuse, NY. Jun 2016

Experimental realization of crossover in shape and director field of nematic tactoids (Poster)
Soft Condensed Matter Physics Gordon Research Conference, New London, NH Aug 2015

Experimental realization of crossover in shape and director field of nematic tactoids
ACS Colloid & Surface Science Symposium, Carnegie Mellon University, Pittsburg, PA. Jun 2015

Mentoring Experience

Graduate student: Andrew Aikawa (PHYS) (University of California, Berkeley)	2020-2022
Graduate student: Abdullah Abbas (MSE) (University of California, Berkeley)	2020-2022
Undergraduate student: Tanner Yamada (CBE) (University of California, Berkeley)	2018-2019
Undergraduate student: Evan Biggers (CHBE) (Rice University)	2016-2017
High School Summer Intern: Miranda Mittleman (Rice University)	Summer 2017
Undergraduate Summer Intern: Samuel Quitzau (NSF REU program)	Summer 2016
First-Year CHBE Graduate Students Mentor (Rice University)	2015-2016

Teaching Experience

Instructor: Transport Phenomena (CHBE 3200) Fall 2022
Georgia Institute of Technology

Dean's Teaching Assistant: Thermodynamics I (CHBE 411) Fall 2014
Rice University

Teaching Assistant: Colloidal & Interfacial Phenomena (CHBE 560) Spring 2014
Rice University

Teaching Assistant: Transport Phenomena I (CHBE 401) Fall 2012
Rice University

Teaching Assistant: Chemical Engineering Lab II (CHBE 433) Fall 2011
Rice University

Press

Rice University: Molecular jiggling has implications for carbon nanotube fibers (05/31/2021)
Phys.org: Molecular jiggling has implications for carbon nanotube fibers (05/31/2021)
Phys.org: Researchers advance characterization, purification of nanotube wires and films (10/16/2017)
EurekaAlert: Long nanotubes make strong fibers (10/16/2017)
MaterialsToday: Scientists explore ways to produce high-quality fibers from carbon nanotubes(11/10/2017)

Professional Affiliations

American Institute of Chemical Engineers, American Chemical Society, Materials Research Society, American Physical Society (GSOFT), Society of Rheology

Services and Outreach

Peer Review
Science Advances, ACS Applied Electronic Materials, Journal of Rheology, Physical Chemistry Chemical Physics, Graduate Women in Science Fellowship

Postdoc representative, Chemistry Graduate Life Committee, UC, Berkeley, CA	2019-2020
Authorized superuser, Alivisatos lab small angle X-ray scattering facility	2018-2022
Session co-chair, AIChE Conference	2017
Authorized superuser, Rice optical microscopy shared facility	2014-2017
Recitation chair, CHBE graduate student association, Rice University	2013-2014
Workshop presenter, Sally Ride Science Festival for Girls, Houston, TX	2012 & 2013