

# Vida Jamali

University of California, Berkeley  
Alivisatos Group, Hildebrand Hall RM D83  
Berkeley, CA 94720

Phone: +1 832 294 7870  
Email: [vidaj@berkeley.edu](mailto:vidaj@berkeley.edu)  
<http://vidajamali.github.io>

## Academic Position

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### University of California, Berkeley

2018-present

Department of Chemistry, Kavli Energy NanoScience Institute, Postdoctoral Researcher  
Advisor: **A. Paul Alivisatos** (joint with Kranthi Mandadapu)

## Education

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### 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

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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)

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- 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". Accepted to *MRS Bulletin*.
- **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).

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## Manuscripts In Preparation

- Abbas, A. S., Vargo, E., **Jamali, V.**, Ercius, P., Pieters, P., Brinn, R. M., Ben-Moshe, A., Cho, M. G., Xu, T., Alivisatos, A. P. “Observation of an orientational glass in a superlattice of elliptically-faceted CdSe nanocrystals”. Submitted-Draft available upon request.
- Aikawa, A.\*, **Jamali, V.\***, Tang, E., Liou, F., Tsai, H. Z, Alivisatos, A. P., Crommie, M. “Tunable ergodicity of adsorbates on graphene with substrate potential landscape engineering”. In preparation-Draft available upon request.

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## 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	

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## 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

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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, Minneapolis, MN.	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 Haven, 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, Pittsburgh, PA.	Jun 2015

## Mentoring Experience

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Graduate student: Andrew Aikawa (PHYS) (University of California, Berkeley)	2020-present
Graduate student: Abdullah Abbas (CHEM) (University of California, Berkeley)	2020-present
Undergraduate student: Tanner Yamada (University of California, Berkeley)	2018-2019
Undergraduate student: Evan Biggers (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

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<i>Dean's Teaching Assistant:</i> Thermodynamics I (CHBE 411) Rice University	Fall 2014
<i>Teaching Assistant:</i> Colloidal & Interfacial Phenomena (CHBE 560) Rice University	Spring 2014
<i>Teaching Assistant:</i> Transport Phenomena I (CHBE 401) Rice University	Fall 2012
<i>Teaching Assistant:</i> Chemical Engineering Lab II (CHBE 433) Rice University	Fall 2011

## Press

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

## Professional Affiliations

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

## Services and Outreach

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### 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-present
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

## References

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### Professor A. Paul Alivisatos

President, Professor, Department of Chemistry and Pritzker School of Molecular Engineering  
University of Chicago, Chicago, IL  
Professor, Department of Chemistry and Materials Science and Engineering  
University of California Berkeley, Berkeley, CA  
Email: Alivisatos-Office@berkeley.edu  
Phone: +1 510 643 2050

### Professor Matteo Pasquali

A. J. Hartsook Professor of Chemical and Biomolecular Engineering  
Department of Chemical and Biomolecular Engineering, Chemistry, and Material Science and Nano Engineering  
Rice University, Houston, TX  
Email: sdl7@rice.edu  
Phone: +1 713 348 5830

### Professor Kranthi K. Mandadapu

Assistant Professor of Chemical and Biomolecular Engineering  
Department of Chemical and Biomolecular Engineering,  
University of California Berkeley, Berkeley, CA  
Email: kranthi@berkeley.edu  
Phone: +1 510 643 6821

### Professor Yeshayahu (Ishi) Talmon

Director of Technion Russell Berrie Nanotechnology Institute  
Professor of Chemical Engineering  
Technion, Israel Institute of Technology, Haifa, Israel  
Email: ishi@technion.ac.il  
Phone: +972 4 829 2007