

Zeng, Cheng

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Professional Experience

2024-now	Professor, Suzhou Institute of Nano-tech and Nano-bionics (SINANO), Chinese Academy of Sciences, Suzhou, China
2020-2024	Manufacturing Design Engineer, Brittle Materials, Apple Inc., Shanghai, China
2017-2019	Postdoctoral Fellow, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, USA Supervisor: Prof. Vinothan N. Manoharan
2011-2017	Ph.D., Physical Chemistry, Indiana University, Bloomington, IN, USA Research Advisor: Prof. Bogdan G. Dragnea
2007-2011	B.S., Chemistry, Wuhan University, Wuhan, China Research Advisor: Prof. Dong, Jinfeng

Cheng is interested in three areas: (i) surfaces, interfaces and capillarity; (ii) self-assembly and directed assembly; (iii) nano-scale imaging.

Honors and Awards

2016	Student Research Fellowship, American Microscopical Society
2013	Travel Award, Southern Indiana Section of the ACS
2007-2011	Undergraduate Scholarships, Second and Third Prizes, Wuhan University
2007	Freshman Scholarship, Second Prize, Wuhan University

Patent

1. Faaborg J. M.; Zeng, C.; Sherif, A.; Bar-Sinai, Y.; Brenner, M. P.; Manoharan, V. N.
2020, US Patent Application: US 2022/0298685 A1.

Publications

In preparation:

1. Zeng, C.; Memet, E.; Bruss, I.; Shahjamali, M.; Mahadevan, L.; Manoharan, V. N.
Stress-induced formation of twisted bundles from small regular arrays of polymer pillars.

Published:

11. Sherif, A; Faaborg, M. W.; Zeng, C.; Brenner, M. P; Manoharan, V. N.
Braiding, twisting, and weaving microscale fibers with capillary forces.
Soft Matter **2024**, 20, 3337-3348.
10. Zeng, C.*; Faaborg J. M.*; Sherif, A.; Falk, M.; Hajian, R.; Xiao, M.; Kara, H.; Bar-Sinai, Y.; Brenner, M. P.; Manoharan, V. N. (*equal contribution)
3D-printed machines that manipulate microscopic objects using capillary forces.
Nature **2022**, 611, 68-73.
Highlighted by [Harvard SEAS News&Events](#)
9. Zeng, C.; Scott, L.; Malyutin, A.; Zandi, R.; Van der Schoot, P.; Dragnea, B.
Virus mechanics under molecular crowding.
J. Phys. Chem. B. **2021**, 125 (7), 1790-1798.

8. Hernando-Pérez, M.; Zeng, C.; Miguel, M. C.; Dragnea, B.
Intermittency of deformation and the elastic limit of an icosahedral virus under compression.
ACS Nano **2019**, 13 (7), 7842-7849.
7. Zeng, C.; Lázaro, G. R.; Tsvetkova, I. B.; Hagan, M. F.; Dragnea, B.
Defects and chirality in the nanoparticle-directed assembly of spherocylindrical shells of virus coat proteins.
ACS Nano **2018**, 12 (6), 5323-5332.
6. Zeng, C.; Hernando-Pérez, M.; Ma, X.; van der Schoot, P.; Zandi, R.; Dragnea, B.
Contact mechanics of a small icosahedral virus.
Phys. Rev. Lett. **2017**, 119, 038102.
5. Zeng, C.; Moller-Tank, S.; Asokan, A.; Dragnea, B.
Probing the link among genomic cargo, contact mechanics and nanoindentation in recombinant adeno-associated virus 2.
J. Phys. Chem. B **2017**, 121, 1843-1853.
4. Zeng, C.; Vitale-Sullivan, C.; Ma, X.
In situ atomic force microscopy studies on nucleation and self-assembly of biogenic and bio-inspired materials.
Minerals **2017**, 7, 158.
3. Zeng, C.
Structure and mechanochemistry of icosahedral viruses and virus shells studied by atomic force microscopy.
Indiana University, **2017**.
2. Delalande, L.; Tsvetkova, I. B.; Zeng, C.; Bond, K.; Jarrold, M. F.; Dragnea, B.
Catching a virus in a molecular net.
Nanoscale **2016**, 8, 16221-16228.
*Nanoscale HOT article; highlighted by Chemistry World.
1. Hernando-Pérez, M.; Zeng, C.; Delalande, L.; Tsvetkova, I. B.; Bosquet, A.; Tayachi-Pigeonnat, M.; Temam, R.; Dragnea, B.
Nanoindentation of isometric viruses on deterministically corrugated substrates.
J. Phys. Chem. B **2016**, 120, 340-347.

Presentations

Oral preparation:

4. Soochow University, Suzhou, China (Jan. 2021)
3. 2019 MRS Fall Meeting & Exhibit, Boston, MA (Dec. 2019)
2. AIChE Polymer and Textile Meeting, Lowell, MA (Nov. 2019)
1. APS March Meeting 2019, Boston, MA (Mar. 2019)

Poster:

3. Physical Virology, Gordon Research Conference and Seminar, Ventura, CA (Jan. 2015).
2. Virus Structure and Assembly, FASEB Science Research Conference, Saxtons River, VT (Jun. 2014)
1. 246th American Chemical Society National Meeting and Exposition, Indianapolis, IN (Sept. 2013)

Teaching

2011-2016 *C103: Introductory Chemistry Laboratory*

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通信地址: 江苏省苏州市工业园区若水路 398 号 中科院苏州纳米所 F404

职业经历

2024 至今	中国科学院苏州纳米技术与纳米仿生研究所轻量化实验室, 研究员, 博士生导师
2020-2024	上海, 苹果公司, 工艺设计工程师 (脆性材料)
2017-2019	美国, 哈佛大学工程与应用科学学院, 博士后 合作导师: Vinodhan N. Manoharan 教授
2011-2017	美国, 印第安纳大学伯明顿分校, 物理化学专业, 博士 导师: Bogdan G. Dragnea 教授
2007-2011	武汉大学, 化学与分子科学学院 毕业论文导师: 董金凤教授

本人的研究兴趣包括: (1) 表面界面和毛细作用; (2) 自组装; (3) 纳米成像

个人荣誉

2016	美国显微镜学会, 学生科研奖金
2013	美国化学会, 旅行奖金
2007-2011	武汉大学, 本科生奖学金 (乙等/丙等)
2007	武汉大学, 新生奖学金 (乙等)

专利

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1. Faaborg J. M.; Zeng, C.; Sherif, A.; Bar-Sinai, Y.; Brenner, M. P.; Manoharan, V. N.
2020, US Patent Application. US 2022/0298685 A1.

论文

准备中:

1. Zeng, C.; Memet, E.; Bruss, I.; Shahjamali, M.; Mahadevan, L.; Manoharan, V. N.
Stress-induced formation of twisted bundles from small regular arrays of polymer pillars.

已发表:

11. Sherif, A.; Faaborg, M. W.; Zeng, C.; Brenner, M. P.; Manoharan, V. N.
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Nanoindentation of isometric viruses on deterministically corrugated substrates.
J. Phys. Chem. B **2016**, 120, 340-347.

学术报告

讲座:

4. 苏州, 苏州大学 (2021 年 1 月)
3. 美国, 波士顿, 2019 年度美国材料科学研究会年会 (2019 年 12 月)
2. 美国, 马萨诸塞州洛厄尔, 美国化工学会聚合物和纺织会议 (2019 年 11 月)
1. 美国, 波士顿, 2019 年美国物理学会年会 (2019 年 3 月)

海报:

3. 美国, 加州文图拉, 物理病毒学戈登会议 (2015 年 1 月)
2. 美国, 佛蒙特州, 病毒结构与组装会议 (2014 年 6 月)
1. 美国, 印第安纳州印第安纳波利斯, 美国化学会年会 (2013 年 9 月)

教学

2011-2016 C103: 基础化学实验