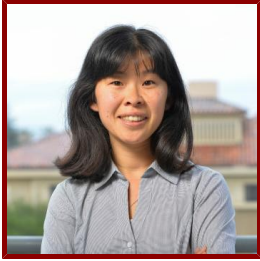


# Stanford

---



## Wendy Gu

Assistant Professor of Mechanical Engineering and, by courtesy, of Materials Science and Engineering

### Bio

---

#### BIO

The Gu Group studies the mechanical behavior of nanomaterials. We work at the intersection of solid mechanics, materials science and nano-chemistry. We research the unique properties of nanoscale metals, ceramics and nano-architected composites in order to design strong, tough and lightweight structural materials, materials for extreme environments, and mechanically-actuated sensors. Our experimental tools include nanoindentation, electron microscopy, and colloidal synthesis.

#### ACADEMIC APPOINTMENTS

- Assistant Professor, Mechanical Engineering
- Assistant Professor (By courtesy), Materials Science and Engineering
- Member, Bio-X

#### HONORS AND AWARDS

- ARO Young Investigator Program Award, Army Research Office (2020)
- DOE Early Career Award, Department of Energy (2020)
- Doctoral New Investigator Award, ACS Petroleum Research Fund (2020)
- Hellman Fellow, Hellman Foundation (2019)
- Terman Faculty Fellow, Stanford Engineering (2017)
- National Defense Science and Engineering Graduate Fellowship, DoD (2011)
- Fulbright Award, Fulbright (2009)

#### BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Symposium organizer, Society of Engineering Sciences (2018 - present)
- Member, Metals, Minerals and Materials Society (2017 - present)
- Member, Materials Research Society (2017 - present)

#### PROFESSIONAL EDUCATION

- BS, University of California, Berkeley (2009)
- MS/PhD, California Institute of Technology (2014)

#### PATENTS

- Mehrdad T. Kiani, X. Wendy Gu. "United States Patent 62/914089 Solution processed metallic nano-glass films", Leland Stanford Junior University., Oct 11, 0019

## LINKS

- My Lab Site: [gulab.stanford.edu](http://gulab.stanford.edu)
- Google Scholar: [https://scholar.google.com/citations?user=EZ3\\_dV8AAAAJ&hl=en](https://scholar.google.com/citations?user=EZ3_dV8AAAAJ&hl=en)

## Teaching

---

### COURSES

#### 2021-22

- Intro to Solid Mechanics: ENGR 14 (Win)
- Mechanical Measurements: ME 149 (Spr)
- Mechanics - Elasticity and Inelasticity: ME 340 (Aut)

#### 2020-21

- Intro to Solid Mechanics: ENGR 14 (Win)
- Mechanics - Elasticity and Inelasticity: ME 340 (Aut)

#### 2019-20

- Mechanics - Elasticity and Inelasticity: ME 340 (Aut)

#### 2018-19

- Imperfections in Crystalline Solids: ME 209 (Win)
- Mechanical Behavior of Nanomaterials: MATSCI 241, ME 241 (Aut)
- Mechanical Measurements: ME 149 (Spr)
- Seminar in Solid Mechanics: ME 395 (Aut, Win, Spr)

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

David Doan, Prajwal Kammardi Arunachala, Chen Liu, Harry Thaman, Lauren Vallez, Yifan Wang

#### Postdoctoral Faculty Sponsor

Teng Cui, Maryam Kazembeyki, Qi Li

#### Doctoral Dissertation Advisor (AC)

David Doan, John Kulikowski, Andrew Lee, Abhinav Parakh, Melody Wang

#### Master's Program Advisor

Devin Ardeshta, Jacob Azoulay, Alexa Davy, Danny Pugh, Ray Xie

#### Doctoral Dissertation Co-Advisor (AC)

Chen Liu

#### Doctoral (Program)

Arielle Berman, Eunyoung Kim

## Publications

---

### PUBLICATIONS

- **Bright NIR-II Photoluminescence in Rod-Shaped Icosahedral Gold Nanoclusters.** *Small (Weinheim an der Bergstrasse, Germany)*

- 
- Li, Q., Zeman, C. J., Ma, Z., Schatz, G. C., Gu, X. W.  
2021: e2007992
- **From Nanocrystals to Nanocrystalline Metals** *Chem*  
Wang, M. M., Gu, X. W.  
2021
  - **Source of Bright Near-Infrared Luminescence in Gold Nanoclusters.** *ACS nano*  
Li, Q., Zeman, C. J., Schatz, G. C., Gu, X. W.  
2021
  - **In Situ TEM Study of Radiation Resistance of Metallic Glass-Metal Core-Shell Nanocubes.** *ACS applied materials & interfaces*  
Kiani, M. T., Hattar, K., Gu, X. W.  
2020
  - **Ductile Metallic Glass Nanoparticles via Colloidal Synthesis.** *Nano letters*  
Kiani, M. T., Barr, C. M., Xu, S., Doan, D., Wang, Z., Parakh, A., Hattar, K., Gu, X. W.  
2020
  - **Hardening in Au-Ag nanoboxes from stacking fault-dislocation interactions.** *Nature communications*  
Patil, R. P., Doan, D., Aitken, Z. H., Chen, S., Kiani, M. T., Barr, C. M., Hattar, K., Zhang, Y., Gu, X. W.  
2020; 11 (1): 2923
  - **Structural distortion and electron redistribution in dual-emitting gold nanoclusters.** *Nature communications*  
Li, Q., Zhou, D., Chai, J., So, W. Y., Cai, T., Li, M., Peteanu, L. A., Chen, O., Cotlet, M., Wendy Gu, X., Zhu, H., Jin, R.  
2020; 11 (1): 2897
  - **Deformation of a nanocube with a single incoherent precipitate: role of precipitate size and dislocation looping** *PHILOSOPHICAL MAGAZINE*  
Kiani, M. T., Murayama, M., Gu, X.  
2020
  - **Stress-Induced Structural Transformations in Au Nanocrystals.** *Nano letters*  
Parakh, A. n., Lee, S. n., Kiani, M. T., Doan, D. n., Kunz, M. n., Doran, A. n., Ryu, S. n., Gu, X. W.  
2020
  - **Packing State Management to Realize Dense and Semiconducting Lead Sulfide Nanocrystals Film via a Single-Step Deposition** *Packing State Management to Realize Dense and Semiconducting Lead Sulfide Nanocrystals Film via a Single-Step Deposition*  
Lu, K., Meng, X., Liu, Z., Chen, J., Wang, Y., Zhang, Y., Zhang, X., Sarnello, E., Shi, G., Patil, R. P., Deng, W., Zhou, S., Gu, et al  
2020
  - **Design and synthesis of multigrain nanocrystals via geometric misfit strain.** *Nature*  
Oh, M. H., Cho, M. G., Chung, D. Y., Park, I. n., Kwon, Y. P., Ophus, C. n., Kim, D. n., Kim, M. G., Jeong, B. n., Gu, X. W., Jo, J. n., Yoo, J. M., Hong, et al  
2020; 577 (7790): 359–63
  - **Pressure-Induced Optical Transitions in Metal Nanoclusters.** *ACS nano*  
Li, Q. n., Mosquera, M. A., Jones, L. O., Parakh, A. n., Chai, J. n., Jin, R. n., Schatz, G. C., Gu, X. W.  
2020
  - **Nucleation of Dislocations in 3.9 nm Nanocrystals at High Pressure.** *Physical review letters*  
Parakh, A. n., Lee, S. n., Harkins, K. A., Kiani, M. T., Doan, D. n., Kunz, M. n., Doran, A. n., Hanson, L. A., Ryu, S. n., Gu, X. W.  
2020; 124 (10): 106104
  - **Dislocation surface nucleation in surfactant-passivated metallic nanocubes** *MRS COMMUNICATIONS*  
Kiani, M. T., Patil, R. P., Gu, X.  
2019; 9 (3): 1029–33
  - **Strengthening Mechanism of a Single Precipitate in a Metallic Nanocube** *NANO LETTERS*  
Kiani, M. T., Wang, Y., Bertin, N., Cai, W., Gu, X.  
2019; 19 (1): 255–60

- **Mechanical Properties of Architected Nanomaterials Made from Organic-Inorganic Nanocrystals** *Mechanical Properties of Architected Nanomaterials Made from Organic-Inorganic Nanocrystals*  
Gu, X. W.  
2018: 2205-2217
- **Pseudoelasticity at Large Strains in Au Nanocrystals.** *Physical review letters*  
Gu, X. W., Hanson, L. A., Eisler, C. N., Koc, M. A., Alivisatos, A. P.  
2018; 121 (5): 056102
- **Tolerance to structural disorder and tunable mechanical behavior in self-assembled superlattices of polymer-grafted nanocrystals.** *Proceedings of the National Academy of Sciences of the United States of America*  
Gu, X. W., Ye, X., Koshy, D. M., Vachhani, S., Hosemann, P., Alivisatos, A. P.  
2017
- **In Situ Lithiation-Delithiation of Mechanically Robust Cu-Si Core-Shell Nanolattices in a Scanning Electron Microscope** *ACS ENERGY LETTERS*  
Xia, X., Di Leo, C. V., Gu, X. W., Greer, J. R.  
2016; 1 (3): 492-499
- **Tailoring of Interfacial Mechanical Shear Strength by Surface Chemical Modification of Silicon Microwires Embedded in Nafion Membranes** *ACS NANO*  
Gallant, B. M., Gu, X., Chen, D. Z., Greer, J. R., Lewis, N. S.  
2015; 9 (5): 5143-53
- **Ductility and work hardening in nano-sized metallic glasses** *APPLIED PHYSICS LETTERS*  
Chen, D. Z., Gu, X. W., An, Q., Goddard, W. A., Greer, J. R.  
2015; 106 (6)
- **Ultra-strong Architected Cu Meso-lattices** *Extreme Mechanics Letters*  
Gu, X. W., Greer, J. R.  
2015: 7-14
- **Mechanisms of Failure in Nanoscale Metallic Glass** *NANO LETTERS*  
Gu, X. W., Jafary-Zadeh, M., Chen, D. Z., Wu, Z., Zhang, Y., Srolovitz, D. J., Greer, J. R.  
2014; 14 (10): 5858-5864
- **Effects of Helium Implantation on the Tensile Properties and Microstructure of Ni73P27 Metallic Glass Nanostructures** *NANO LETTERS*  
Liontas, R., Gu, X., Fu, E., Wang, Y., Li, N., Mara, N., Greer, J. R.  
2014; 14 (9): 5176-83
- **Microstructure versus Flaw: Mechanisms of Failure and Strength in Nanostructures** *NANO LETTERS*  
Gu, X. W., Wu, Z., Zhang, Y., Srolovitz, D. J., Greer, J. R.  
2013; 13 (11): 5703-5709
- **Size-Dependent Deformation of Nanocrystalline Pt Nanopillars** *NANO LETTERS*  
Gu, X. W., Loynachan, C. N., Wu, Z., Zhang, Y., Srolovitz, D. J., Greer, J. R.  
2012; 12 (12): 6385-6392
- **Exploring Deformation Mechanisms in Nanostructured Materials** *JOM*  
Greer, J. R., Jang, D., Gu, X.  
2012; 64 (10): 1241-52
- **Photoconductive CdSe Nanowire Arrays, Serpentine, and Loops Formed by Electrodeposition on Self-Organized Carbon Nanotubes** *JOURNAL OF PHYSICAL CHEMISTRY C*  
Gu, X., Shadmi, N., Yarden, T. S., Cohen, H., Joselevich, E.  
2012; 116 (37): 20121-26
- **Suppression of Catastrophic Failure in Metallic Glass-Polyisoprene Nanolaminate Containing Nanopillars** *ADVANCED FUNCTIONAL MATERIALS*  
Kim, J., Gu, X., Wraith, M., Uhl, J. T., Dahmen, K. A., Greer, J. R.  
2012; 22 (9): 1972-80
- **Liquid Crystalline Orientation of Rod Blocks within Lamellar Nanostructures from Rod Coil Diblock Copolymers** *MACROMOLECULES*

Olsen, B. D., Gu, X., Hexemer, A., Gann, E., Segalman, R. A.  
2010; 43 (16): 6531-34

- **A Universal and Solution-Processable Precursor to Bismuth Chalcogenide Thermoelectrics** *Chemistry of Materials*

Wang, R. Y., Feser, J. P., Gu, X., Yau, K. M., Segalman, R. A., Majumdar, A., Milliron, D. J., Urban, J. J.  
2010: 1943-1945