Stanford

Changxin Lyla Dong

Ph.D. Student in Materials Science and Engineering, admitted Autumn 2022

Bio

BIO

Lyla Dong is committed to advancing innovative materials solutions that address critical challenges in health and environmental sustainability. As a PhD candidate at Stanford University advised by Professor Eric A. Appel (MSE) and co-advised by Professor Grace Gao (AA), she focuses on creating novel material solutions to protect against wildfires and improve therapeutic delivery systems.

Prior to her studies at Stanford, Lyla conducted research under the mentorship of Professors Pulickel M. Ajayan and Haotian Wang at Rice University. She developed functional materials for batteries and explored technologies for carbon capture, discovering her passion for sustainable materials science.

Through her interdisciplinary approach, Lyla strives to bridge the critical intersections between health and environmental sustainability, creating solutions that have a real-world impact.

HONORS AND AWARDS

- James and Nancy Kelso Fellow, Stanford Interdisciplinary Graduate Fellowship (2025-2028)

EDUCATION AND CERTIFICATIONS

- M.S., Stanford University , Materials Science and Engineering (2024)
- B.S., Rice University , Materials Science and NanoEngineering (2022)

LINKS

- LinkedIn: https://www.linkedin.com/in/lyla-dong-462139164/
- Lab: http://www.supramolecularbiomaterials.com/
- News: https://www.cbsnews.com/sanfrancisco/news/stanford-scientists-develop-gel-protect-homes-against-wildfires/

Research & Scholarship

LAB AFFILIATIONS

- Grace Gao, Navigation and Autonomous Vehicle Lab (9/25/2025)
- Eric Appel, Supramolecular Materials Lab (9/26/2022)

Publications

PUBLICATIONS

- **Water-Enhancing Gels Exhibiting Heat-Activated Formation of Silica Aerogels for Protection of Critical Infrastructure During Catastrophic Wildfire.** *Advanced materials (Deerfield Beach, Fla.)*
  Dong, C., d'Aquino, A. I., Sen, S., Hall, I. A., Yu, A. C., Crane, G. B., Acosta, J. D., Appel, E. A.
  2024: e2407375

- **Continuous carbon capture in an electrochemical solid-electrolyte reactor.** *Nature*
  Zhu, P., Wu, Z. Y., Elgazzar, A., Dong, C., Wi, T. U., Chen, F. Y., Xia, Y., Feng, Y., Shakouri, M., Kim, J. Y., Fang, Z., Hatton, T. A., Wang, et al
  2023; 618 (7967): 959-966

- **Long-Acting Hydrogel-Based Depot Formulations of Tirzepatide and Semaglutide for the Management of Type 2 Diabetes and Weight** *ADVANCED THERAPEUTICS*
  d'Aquino, A. I., Dong, C., Nguyen, L. T., Yan, J., Jons, C. K., Saouaf, O. M., Song, Y., Eckman, N., Kapasi, S., Williams, C. M., Doulames, V., Sen, S., Manna, et al
  2026; 9 (2)

- **Hydrogel formulations for sustained-release of broadly neutralizing antibodies.** *Journal of controlled release : official journal of the Controlled Release Society*
  Jons, C. K., Kasse, C. M., Mayer, B. T., Hyrien, O., Sen, S., Meany, E. L., d'Aquino, A. I., Ganesh, P., Eckman, N., Dong, C., Yan, J., Nguyen, L. T., Doulames, et al
  2025: 114349

- **Advancing Wildfire-Retardant Materials: Engineering Strategies for Direct and Indirect Suppression** *ADVANCED ENGINEERING MATERIALS*
  Dong, C., Sen, S., Kolli, A., Wilson, S. G., Appel, E.
  2025

- **Ultrahigh-concentration biologic therapeutics enabled by spray drying with a glassy surfactant excipient.** *Science translational medicine*
  Jons, C. K., Prossnitz, A. N., Eckman, N., Dong, C., Utz, A., Appel, E. A.
  2025; 17 (812): eadv6427

- **Hydrogel-to-Aerogel Transitions in Polymer-Particle Hydrogels Expand the Wildfire Defense Window.** *ACS applied materials & interfaces*
  Dong, C., Sen, S., Ru, Z., Kolli, A., Appel, P. S., Fan, J. A., Appel, E. A.
  2025

- **Polyacrylamide-Based Antimicrobial Copolymers to Replace or Rescue Antibiotics** *ACS CENTRAL SCIENCE*
  Williams, S. C., Chosy, M. B., Jons, C. K., Dong, C., Prossnitz, A. N., Liu, X., Hernandez, H., Cegelski, L., Appel, E. A.
  2025

- **Viral Vector Eluting Lenses for Single-Step Targeted Expression of Genetically-Encoded Activity Sensors for in Vivo Microendoscopic Calcium Imaging.** *Macromolecular bioscience*
  Jons, C. K., Cheng, D., Dong, C., Meany, E. L., Nassi, J. J., Appel, E. A.
  2024: e2400359

- **Biomimetic Non-ergodic Aging by Dynamic-to-covalent Transitions in Physical Hydrogels.** *ACS applied materials & interfaces*
  Sen, S., Dong, C., D'Aquino, A. I., Yu, A. C., Appel, E. A.
  2024

- **Fluorinated Multi-Walled Carbon Nanotubes Coated Separator Mitigates Polysulfide Shuttle in Lithium-Sulfur Batteries.** *Materials (Basel, Switzerland)*
  Salpekar, D., Dong, C., Oliveira, E. F., Khabashesku, V. N., Gao, G., Ojha, V., Vajtai, R., Galvao, D. S., Babu, G., Ajayan, P. M.
  2023; 16 (5)