Stanford



Vivian Feig

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

Bio

BIO

The Feig lab aims to develop low-cost, noninvasive, and widely-accessible medical technologies that integrate seamlessly with the human body. We accomplish this by developing functional materials and devices with dynamic mechanical properties, leveraging chemistry and physics insights to engineer novel systems at multiple length scales. In pursuit of our goals, we maintain a strong emphasis on integrity and diversity, while nurturing the intellectual curiosity and holistic growth of our team members as researchers, communicators, and leaders.

ACADEMIC APPOINTMENTS

- Assistant Professor, Mechanical Engineering
- Assistant Professor (By courtesy), Materials Science and Engineering
- Member, Bio-X
- Member, Wu Tsai Human Performance Alliance
- Member, Wu Tsai Neurosciences Institute

Teaching

COURSES

2026-27

- Designing Biomaterials: MATSCI 249, ME 249 (Aut)
- Engineering for Women's Health: ENGR 307 (Win)
- Intro to Solid Mechanics: ENGR 14 (Spr)

2025-26

- Designing Biomaterials: ME 249 (Aut)
- Engineering for Women's Health: ENGR 307 (Win)
- Intro to Solid Mechanics: ENGR 14 (Spr)

2024-25

- Designing Biomaterials: ME 249 (Win)
- Intro to Solid Mechanics: ENGR 14 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Lyla Dong

Doctoral Dissertation Advisor (AC)

Ana Aranzola, Chen Dai, Kayla Hellikson, Choeun Kim, Benjamin LeRoy, Ashka Patel

Master's Program Advisor

Colombe Archambaud, Audrey Ball, Alaz Cig, Hazel Jones, Erfan Khoshnevis, Amanda Weckerly

Doctoral Dissertation Co-Advisor (AC)

Huy Tran

Doctoral (Program)

Zhiqi Dong, Jonathan Lewis, Nandita Venkataraman

Publications

PUBLICATIONS

- **PEDOTs-Based Conductive Hydrogels: Design, Fabrications, and Applications.** *Advanced materials (Deerfield Beach, Fla.)*
  Li, H., Cao, J., Wan, R., Feig, V. R., Tringides, C. M., Xu, J., Yuk, H., Lu, B.
  2024: e2415151
- **Designing for medication adherence in inflammatory boweldisease: multi-disciplinary approaches for self-administrable biotherapeutics** *ECLINICALMEDICINE*
  Feig, V., Zhang, S., Patel, A., Santos, B., Kang, Z., Wasan, S., Beloqui, A., Traverso, G.
  2024; 77
- **Designing for medication adherence in inflammatory bowel disease: multi-disciplinary approaches for self-administrable biotherapeutics.** *EClinicalMedicine*
  Feig, V. R., Zhang, S., Patel, A., Santos, B., Kang, Z., Wasan, S., Beloqui, A., Traverso, G.
  2024; 77: 102850
- **Drinkable in situ-forming tough hydrogels for gastrointestinal therapeutics.** *Nature materials*
  Liu, G. W., Pickett, M. J., Kuosmanen, J. L., Ishida, K., Madani, W. A., White, G. N., Jenkins, J., Park, S., Feig, V. R., Jimenez, M., Karavasili, C., Lal, N. B., Murphy, et al
  2024
- **Conducting polymer-based granular hydrogels for injectable 3D cell scaffolds.** *Advanced materials technologies*
  Feig, V. R., Santhanam, S., McConnell, K. W., Liu, K., Azadian, M., Brunel, L. G., Huang, Z., Tran, H., George, P. M., Bao, Z.
  2021; 6 (6)
- **Microengineering Pressure Sensor Active Layers for Improved Performance** *ADVANCED FUNCTIONAL MATERIALS*
  Ruth, S., Feig, V., Tran, H., Bao, Z.
  2020
- **Rational Design of Capacitive Pressure Sensors Based on Pyramidal Microstructures for Specialized Monitoring of Biosignals** *ADVANCED FUNCTIONAL MATERIALS*
  Ruth, S., Beker, L., Tran, H., Feig, V., Matsuhisa, N., Bao, Z.
  2020; 30 (29)
- **Biodegradable and stretchable polymeric materials for transient electronic devices** *MRS BULLETIN*
  Liu, K., Tran, H., Feig, V., Bao, Z.
  2020; 45 (2): 96–102
- **Electrochemical patterning of tissue-mimetic conductive hydrogels**
  Feig, V., Tran, H., Lee, M., Liu, K., Huang, Z., Bao, Z.
  AMER CHEMICAL SOC.2019

- **An Electrochemical Gelation Method for Patterning Conductive PEDOT:PSS Hydrogels.** *Advanced materials (Deerfield Beach, Fla.)*
  Feig, V. R., Tran, H., Lee, M., Liu, K., Huang, Z., Beker, L., Mackanic, D. G., Bao, Z.
  2019: e1902869
- **Strain- and Strain-Rate-Invariant Conductance in a Stretchable and Compressible 3D Conducting Polymer Foam** *MATTER*
  Chen, G., Rastak, R., Wang, Y., Yan, H., Feig, V., Liu, Y., Jiang, Y., Chen, S., Lian, F., Molina-Lopez, F., Jin, L., Cui, K., Chung, et al
  2019; 1 (1): 205–18
- **Polymer Chemistries Underpinning Materials for Skin-Inspired Electronics** *MACROMOLECULES*
  Tran, H., Feig, V. R., Liu, K., Zheng, Y., Bao, Z.
  2019; 52 (11): 3965–74
- **Multi-scale ordering in highly stretchable polymer semiconducting films** *NATURE MATERIALS*
  Xu, J., Wu, H., Zhu, C., Ehrlich, A., Shaw, L., Nikolka, M., Wang, S., Molina-Lopez, F., Gu, X., Luo, S., Zhou, D., Kim, Y., Wang, et al
  2019; 18 (6): 594-+
- **Multi-scale ordering in highly stretchable polymer semiconducting films.** *Nature materials*
  Xu, J., Wu, H., Zhu, C., Ehrlich, A., Shaw, L., Nikolka, M., Wang, S., Molina-Lopez, F., Gu, X., Luo, S., Zhou, D., Kim, Y., Wang, et al
  2019
- **Electrochemical patterning of tissue-mimetic conductive hydrogels**
  Feig, V., Tran, H., Lee, M., Huang, R., Liu, K., Baker, L., Mackanic, D., Bao, Z.
  AMER CHEMICAL SOC.2019
- **Stretchable and Fully Degradable Semiconductors for Transient Electronics.** *ACS central science*
  Tran, H. n., Feig, V. R., Liu, K. n., Wu, H. C., Chen, R. n., Xu, J. n., Deisseroth, K. n., Bao, Z. n.
  2019; 5 (11): 1884–91
- **Mechanically tunable conductive interpenetrating network hydrogels that mimic the elastic moduli of biological tissue (vol 9, 2740, 2018)** *NATURE COMMUNICATIONS*
  Feig, V. R., Tran, H., Lee, M., Bao, Z.
  2018; 9: 5030
- **Biodegradable and stretchable electronic materials for transient electronics**
  Tran, H., Feig, V., Xu, J., Bao, Z.
  AMER CHEMICAL SOC.2018
- **Mechanically tunable conductive interpenetrating network hydrogels that mimic the elastic moduli of biological tissue.** *Nature communications*
  Feig, V. R., Tran, H., Lee, M., Bao, Z.
  2018; 9 (1): 2740
- **Mechanically tunable conductive interpenetrating network hydrogels that mimic the elastic moduli of biological tissue** *NATURE COMMUNICATIONS*
  Feig, V. R., Tran, H., Lee, M., Bao, Z.
  2018; 9
- **Biodegradable Polymeric Materials in Degradable Electronic Devices** *ACS CENTRAL SCIENCE*
  Feig, V. R., Tran, H., Bao, Z.
  2018; 4 (3): 337–48
- **Skin electronics from scalable fabrication of an intrinsically stretchable transistor array** *NATURE*
  Wang, S., Xu, J., Wang, W., Wang, G., Rastak, R., Molina-Lopez, F., Chung, J., Niu, S., Feig, V. R., Lopez, J., Lei, T., Kwon, S., Kim, et al
  2018; 555 (7694): 83-+
- **The Effects of Counter Anions on the Dynamic Mechanical Response in Polymer Networks Crosslinked by Metal-Ligand Coordination** *JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY*
  Rao, Y., Feig, V., Gu, X., Wang, G., Bao, Z.
  2017; 55 (18): 3110–16

- **Highly stretchable polymer semiconductor films through the nanoconfinement effect** *SCIENCE*
  Xu, J., Wang, S., Wang, G. N., Zhu, C., Luo, S., Jin, L., Gu, X., Chen, S., Feig, V. R., To, J. W., Rondeau-Gagne, S., Park, J., Schroeder, et al
  2017; 355 (6320): 59-?
- **Stretchable Self-Healing Polymeric Dielectrics Cross-Linked Through Metal-Ligand Coordination** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
  Rao, Y., Chortos, A., Pfattner, R., Lissel, F., Chiu, Y., Feig, V., Xu, J., Kurosawa, T., Gu, X., Wang, C., He, M., Chung, J. W., Bao, et al
  2016; 138 (18): 6020-6027