

Stanford



Leeya Engel

Postdoctoral Research Fellow, Chemical Engineering

 Curriculum Vitae available Online

Bio

BIO

My long term professional goal is to lead academic research that probes cell behavior using custom bio-microsystems and cryo-electron tomography (cryo-ET). In my PhD I designed, fabricated, and characterized innovative electroactive polymer micro-actuators. In the Pruitt lab at Stanford I studied metrology of cell forces and techniques to interface between silicon devices with biological cells. In the Dunn lab, I am applying microfluidic platforms to study developmental biology and improve throughput of cellular cryo-ET through protein micropatterning.

PROFESSIONAL EDUCATION

- Doctor of Philosophy, Tel Aviv University (2016)
- Ph.D., Tel Aviv University , Materials Engineering and Nanotechnologies (2017)
- M.Sc., Tel Aviv University , Materials Engineering and Nanotechnologies (2014)
- B.Sc., The Hebrew University of Jerusalem , Physics (2008)

STANFORD ADVISORS

- Alexander Dunn, Postdoctoral Faculty Sponsor
- Alexander Dunn, Postdoctoral Research Mentor

Publications

PUBLICATIONS

- **Lattice Micropatterning of Electron Microscopy Grids for Improved Cellular Cryo-Electron Tomography Throughput**
Engel, L., Vasquez, C. G., Montabana, E. A., Sow, B. M., Walkiewicz, M. P., Weis, W. I., Dunn, A. R.
CELL PRESS.2021: 173A
- **MEMS device for applying shear and tension to an epithelium combined with fluorescent live cell imaging** *JOURNAL OF MICROMECHANICS AND MICROENGINEERING*
Garcia, M. A., Sadeghipour, E., Engel, L., Nelson, W., Pruitt, B. L.
2020; 30 (12)
- **Spatially controlled stem cell differentiation via morphogen gradients: A comparison of static and dynamic microfluidic platforms** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A*
Cui, K. W., Engel, L., Dundes, C. E., Nguyen, T. C., Loh, K. M., Dunn, A. R.
2020; 38 (3)
- **Spatially controlled stem cell differentiation via morphogen gradients: A comparison of static and dynamic microfluidic platforms.** *Journal of vacuum science & technology. A, Vacuum, surfaces, and films : an official journal of the American Vacuum Society*
Cui, K. W., Engel, L. n., Dundes, C. E., Nguyen, T. C., Loh, K. M., Dunn, A. R.

2020; 38 (3): 033205

- **Extracellular matrix micropatterning technology for whole cell cryogenic electron microscopy studies** *JOURNAL OF MICROMECHANICS AND MICROENGINEERING*
Engel, L., Gaietta, G., Dow, L. P., Swif, M. F., Pardon, G., Volkmann, N., Weis, W., Hanein, D., Pruitt, B. L.
2019; 29 (11)
- **Extracellular matrix micropatterning technology for whole cell cryogenic electron microscopy studies.** *Journal of micromechanics and microengineering : structures, devices, and systems*
Engel, L. n., Gaietta, G. n., Dow, L. P., Swift, M. F., Pardon, G. n., Volkmann, N. n., Weis, W. I., Hanein, D. n., Pruitt, B. L.
2019; 29 (11)
- **Local electrochemical control of hydrogel microactuators in microfluidics** *JOURNAL OF MICROMECHANICS AND MICROENGINEERING*
Engel, L., Liu, C., Hemed, N., Khan, Y., Arias, A., Shacham-Diamand, Y., Krylov, S., Lin, L.
2018; 28 (10)
- **Spectroscopic ellipsometry study of spin coated P(VDF-TrFE-CTFE) thin films and P(VDF-TrFE-CTFE)/PMMA blends** *MICROELECTRONIC ENGINEERING*
Ben-David, M., Engel, L., Shacham-Diamand, Y.
2017; 171: 37-43
- **Engineered hybrid cardiac patches with multifunctional electronics for online monitoring and regulation of tissue function** *NATURE MATERIALS*
Feiner, R., Engel, L., Fleischer, S., Malki, M., Gal, I., Shapira, A., Shacham-Diamand, Y., Dvir, T.
2016; 15 (6): 679-+
- **High surface area thermoplastic polymer films fabricated by mechanical tearing using nano-porous silicon** *MICROELECTRONIC ENGINEERING*
Hakshur, K., Engel, L., Shacham-Diamand, Y., Ruschin, S.
2016; 150: 71-73
- **Fabrication of a self-sensing electroactive polymer bimorph actuator based on polyvinylidene fluoride and its electrostrictive terpolymer**
Engel, L., Van Volkinburg, K. R., Ben-David, M., Washington, G. N., Krylov, S., Shacham-Diamand, Y., BarCohen, Y., Vidal, F.
SPIE-INT SOC OPTICAL ENGINEERING.2016
- **A Cardiovascular Occlusion Method Based on the Use of a Smart Hydrogel** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*
Jackson, N., Verbrugge, P., Cuypers, D., Adesanya, K., Engel, L., Glazer, P., Dubrue, P., Shacham-Diamand, Y., Mendes, E., Herijgers, P., Stam, F.
2015; 62 (2): 399-406
- **A study toward the development of an electromechanical poly(vinylidene fluoride-trifluoroethylene-chlorofluoroethylene) buckling membrane actuator** *JOURNAL OF MICROMECHANICS AND MICROENGINEERING*
Engel, L., Kruk, S., Shklovsky, J., Shacham-Diamand, Y., Krylov, S.
2014; 24 (12)
- **Thermoplastic nanoimprint lithography of electroactive polymer poly(vinylidene fluoride-trifluoroethylene-chlorofluoroethylene) for micro/nanoscale sensors and actuators** *JOURNAL OF MICRO-NANOLITHOGRAPHY MEMS AND MOEMS*
Engel, L., Krylov, S., Shacham-Diamand, Y.
2014; 13 (3)
- **Actuation of a novel Pluronic-based hydrogel: Electromechanical response and the role of applied current** *SENSORS AND ACTUATORS B-CHEMICAL*
Engel, L., Berkh, O., Adesanya, K., Shklovsky, J., Vanderleyden, E., Dubrue, P., Shacham-Diamand, Y., Krylov, S.
2014; 191: 650-58
- **Nano-imprinting lithography of P(VDF-TrFE-CFE) for flexible freestanding MEMS devices** *MICROELECTRONIC ENGINEERING*
Shklovsky, J., Engel, L., Sverdlov, Y., Shacham-Diamand, Y., Krylov, S.
2012; 100: 41-46
- **Freestanding smooth micron-scale polydimethylsiloxane (PDMS) membranes by thermal imprinting** *JOURNAL OF MICROMECHANICS AND MICROENGINEERING*
Engel, L., Shklovsky, J., Schrieber, D., Krylov, S., Shacham-Diamand, Y.
2012; 22 (4)