

# Stanford

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## Jeffrey B. Tok

Laboratory Director, Chemical Engineering

### Bio

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#### BIO

##### Education:

The University of Washington, Seattle, WA, B.Sc. (Chemistry & Biochemistry), 1989-1992

The University of Chicago, Chicago, IL, Ph.D. (Bioorganic Chemistry), 1992-1996

Harvard University, Boston, MA, Postdoctoral Research Fellow (Bioorganic Chemistry), 1997-1999

##### Work Experience:

Assistant Professor, City University of New York, York College and Graduate Center, 1999-2003

Associate Professor, City University of New York, York College and Graduate Center, 2003-2004

Principal Scientist (Indefinite), Lawrence Livermore National Laboratory, 2004-2008

Chief BioScientist, Micropoint Bioscience Inc, 2008-2010

Senior Research Engineer/Scientist, Stanford University, 2010-present

Director, Uytengsu Teaching Center, Shriram Center, 2015-present

Manager, Soft & Hybrid Materials Shared Facility, Stanford Nano Shared Facility, 2010-present

Manager & Instructor, Dept of Chemical Engineering Teaching Lab, 2010-present

##### Research Activities:

'Google Scholar' link: <https://scholar.google.com/citations?user=hXSGJC0AAAAJ&hl=en&oi=sra>

##### Soft & Hybrid Materials Facility (SMF) link:

<https://snsf.stanford.edu/equipment/smf/index.html>

#### LINKS

- Uytengsu Teaching Laboratories at Shriram Center: <https://uytengsuteachinglab.stanford.edu/>

## Publications

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### PUBLICATIONS

- **A Bioinspired stretchable membrane-based compliance sensor.** *Proceedings of the National Academy of Sciences of the United States of America*  
Beker, L., Matsuhisa, N., You, I., Ruth, S. R., Niu, S., Foudeh, A., Tok, J. B., Chen, X., Bao, Z.  
2020
- **Stretchable organic optoelectronic sensorimotor synapse.** *Science advances*  
Lee, Y., Oh, J. Y., Xu, W., Kim, O., Kim, T. R., Kang, J., Kim, Y., Son, D., Tok, J. B., Park, M. J., Bao, Z., Lee, T.  
2018; 4 (11): eaat7387
- **An integrated self-healable electronic skin system fabricated via dynamic reconstruction of a nanostructured conducting network.** *Nature nanotechnology*  
Son, D., Kang, J., Vardoulis, O., Kim, Y., Matsuhisa, N., Oh, J. Y., To, J. W., Mun, J., Katsumata, T., Liu, Y., McGuire, A. F., Krason, M., Molina-Lopez, et al  
2018
- **An Elastic Autonomous Self-Healing Capacitive Sensor Based on a Dynamic Dual Crosslinked Chemical System** *ADVANCED MATERIALS*  
Zhang, Q., Niu, S., Wang, L., Lopez, J., Chen, S., Cai, Y., Du, R., Liu, Y., Lai, J., Liu, L., Li, C., Yan, X., Liu, et al  
2018; 30 (33): e1801435
- **Quadruple H-Bonding Cross-Linked Supramolecular Polymeric Materials as Substrates for Stretchable, Antitearing, and Self-Healable Thin Film Electrodes** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Yan, X., Liu, Z., Zhang, Q., Lopez, J., Wang, H., Wu, H., Niu, S., Yan, H., Wang, S., Lei, T., Li, J., Qi, D., Huang, et al  
2018; 140 (15): 5280–89
- **Tough and Water-Insensitive Self-Healing Elastomer for Robust Electronic Skin** *ADVANCED MATERIALS*  
Kang, J., Son, D., Wang, G., Liu, Y., Lopez, J., Kim, Y., Oh, J., Katsumata, T., Mun, J., Lee, Y., Jin, L., Tok, J., Bao, et al  
2018; 30 (13): e1706846
- **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–+
- **Deformable Organic Nanowire Field-Effect Transistors** *ADVANCED MATERIALS*  
Lee, Y., Oh, J., Kim, T., Gu, X., Kim, Y., Wang, G., Wu, H., Pfattner, R., To, J. F., Katsumata, T., Son, D., Kang, J., Matthews, et al  
2018; 30 (7)
- **Soft conductive micropillar electrode arrays for biologically relevant electrophysiological recording.** *Proceedings of the National Academy of Sciences of the United States of America*  
Liu, Y., McGuire, A. F., Lou, H. Y., Li, T. L., Tok, J. B., Cui, B., Bao, Z.  
2018
- **Biocompatible and totally disintegrable semiconducting polymer for ultrathin and ultralightweight transient electronics** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Lei, T., Guan, M., Liu, J., Lin, H., Pfattner, R., Shaw, L., McGuire, A. F., Huang, T., Shao, L., Cheng, K., Tok, J. B., Bao, Z.  
2017; 114 (20): 5107-5112
- **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–?
- **Intrinsically stretchable and healable semiconducting polymer for organic transistors** *NATURE*  
Oh, J. Y., Rondeau-Gagne, S., Chiu, Y., Chortos, A., Lissel, F., Wang, G. N., Schroeder, B. C., Kurosawa, T., Lopez, J., Katsumata, T., Xu, J., Zhu, C., Gu, et al  
2016; 539 (7629): 411-415
- **Hierarchical N-Doped Carbon as CO<sub>2</sub> Adsorbent with High CO<sub>2</sub> Selectivity from Rationally Designed Polypyrrole Precursor** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
To, J. W., He, J., Mei, J., Haghpanah, R., Chen, Z., Kurosawa, T., Chen, S., Bae, W., Pan, L., Tok, J. B., Wilcox, J., Bao, Z.  
2016; 138 (3): 1001-1009

- **A chameleon-inspired stretchable electronic skin with interactive colour changing controlled by tactile sensing** *NATURE COMMUNICATIONS*  
Chou, H., Nguyen, A., Chortos, A., To, J. W., Lu, C., Mei, J., Kurosawa, T., Bae, W., Tok, J. B., Bao, Z.  
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- **Highly skin-conformal microhairly sensor for pulse signal amplification.** *Advanced materials*  
Pang, C., Koo, J. H., Nguyen, A., Caves, J. M., Kim, M., Chortos, A., Kim, K., Wang, P. J., Tok, J. B., Bao, Z.  
2015; 27 (4): 634-640
- **Electronic Readout Enzyme-Linked Immunosorbent Assay with Organic Field-Effect Transistors as a Preeclampsia Prognostic** *ADVANCED MATERIALS*  
Hammock, M. L., Knopfmacher, O., Ng, T. N., Tok, J. B., Bao, Z.  
2014; 26 (35): 6138-?
- **Large-area, transparent, and flexible infrared photodetector fabricated using p-N junctions formed by N-doping chemical vapor deposition grown graphene.** *Nano letters*  
Liu, N., Tian, H., Schwartz, G., Tok, J. B., Ren, T., Bao, Z.  
2014; 14 (7): 3702-3708
- **A flexible bimodal sensor array for simultaneous sensing of pressure and temperature.** *Advanced materials*  
Tien, N. T., Jeon, S., Kim, D., Trung, T. Q., Jang, M., Hwang, B., Byun, K., Bae, J., Lee, E., Tok, J. B., Bao, Z., Lee, N., Park, et al  
2014; 26 (5): 796-804
- **25th Anniversary Article: The Evolution of Electronic Skin (E-Skin): A Brief History, Design Considerations, and Recent Progress** *ADVANCED MATERIALS*  
Hammock, M. L., Chortos, A., Tee, B. C., Tok, J. B., Bao, Z.  
2013; 25 (42): 5997-6037
- **A rapid and efficient self-healing thermo-reversible elastomer crosslinked with graphene oxide.** *Advanced materials*  
Wang, C., Liu, N., Allen, R., Tok, J. B., Wu, Y., Zhang, F., Chen, Y., Bao, Z.  
2013; 25 (40): 5785-5790
- **STRETCHABLE LEDS Light-emitting electronic skin** *NATURE PHOTONICS*  
Vosgueritchian, M., Tok, J. B., Bao, Z.  
2013; 7 (10): 769-771
- **Investigation of protein detection parameters using nanofunctionalized organic field-effect transistors.** *ACS nano*  
Hammock, M. L., Knopfmacher, O., Naab, B. D., Tok, J. B., Bao, Z.  
2013; 7 (5): 3970-3980
- **Transparent, Optical, Pressure-Sensitive Artificial Skin for Large-Area Stretchable Electronics** *ADVANCED MATERIALS*  
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- **Selective dispersion of high purity semiconducting single-walled carbon nanotubes with regioregular poly(3-alkylthiophene)s** *NATURE COMMUNICATIONS*  
Lee, H. W., Yoon, Y., Park, S., Oh, J. H., Hong, S., Liyanage, L. S., Wang, H., Morishita, S., Patil, N., Park, Y. J., Park, J. J., Spakowitz, A., Galli, et al  
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- **Syntheses of Organic Molecule-DNA Hybrid Structures** *ACS NANO*  
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- **Aptamer-Based SERRS Sensor for Thrombin Detection** *NANO LETTERS*  
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- **Sensitive and selective viral DNA detection assay via microbead-based rolling circle amplification** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*  
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- **Single microbead SELEX for efficient ssDNA aptamer generation against botulinum neurotoxin** *CHEMICAL COMMUNICATIONS*  
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- **Biofunctional subwavelength optical waveguides for biodetection** *ACS NANO*  
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- **Protein detection via direct enzymatic amplification of short DNA aptamers** *ANALYTICAL BIOCHEMISTRY*  
Fischer, N. O., Tarasow, T. M., Tok, J. B.  
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- **Aptasensors for biosecurity applications** *CURRENT OPINION IN CHEMICAL BIOLOGY*  
Fischer, N., Tarasow, T. M., Tok, J. B.  
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- **Heightened sense for sensing: recent advances in pathogen immunoassay sensing platforms** *ANALYST*  
Fischer, N. O., Tarasow, T. M., Tok, J. B.  
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- **Assembly and alignment of metallic nanorods on surfaces with patterned wettability** *SMALL*  
Liu, S., Tok, J. B., Locklin, J., Bao, Z.  
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- **Generating short peptidic ligands for silver nanowires from phage display random libraries** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*  
Chan, P., Phan, T., Kao, M. C., Dolan, C., Tok, J. B.  
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- **Dual-acting agents that possess free radical scavenging and antithrombotic activities: Design, synthesis, and evaluation of phenolic tetrahydro-beta-carboline RGD peptide conjugates** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*  
Bi, W., Bi, L., Cai, J., Liu, S., Peng, S., Fischer, N. O., Tok, J. B., Wang, G.  
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- **Metallic striped nanowires as multiplexed immunoassay platforms for pathogen detection** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Tok, J. B., Chuang, F. Y., Kao, M. C., Rose, K. A., Pannu, S. S., Sha, M. Y., Chakarova, G., Penn, S. G., Dougherty, G. M.  
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