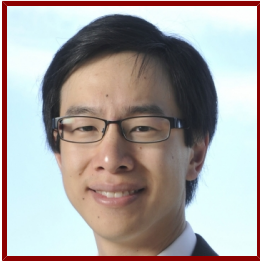


Stanford



Jonathan Fan

Assistant Professor of Electrical Engineering

Bio

BIO

Jonathan was born in Columbus, Ohio. He received his BSE degree in Electrical Engineering from Princeton University in 2004 with highest honors and his PhD in Applied Physics from Harvard University in 2010 under the supervision of Professor Federico Capasso. He was an NSF Graduate Fellow, and his dissertation focused on the optical properties of self-assembled metallodielectric colloidal clusters. Afterwards, he was a Beckman Institute Postdoctoral Fellow at the University of Illinois in Urbana-Champaign, where he researched epidermal-based stretchable electronics systems under the supervision of Professor John Rogers. He is currently an Assistant Professor in the Department of Electrical Engineering and Director of the FTF Lab in the Stanford Nanofabrication Laboratory.

ACADEMIC APPOINTMENTS

- Assistant Professor, Electrical Engineering
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Director, Fast Turnaround Facility in the Stanford Nanofabrication Facility, (2014- present)

HONORS AND AWARDS

- AFOSR Young Investigator Award, Department of Defense (2015)
- Invitee to the National Academy of Engineering Frontiers Symposium, National Academy of Engineering (2014)
- Beckman Postdoctoral Fellowship, University of Illinois, Urbana-Champaign (2011)
- Jeffrey O. Kephart '80 Engineering Physics Award, Princeton University (2004)
- National Science Foundation Graduate Fellowship, National Science Foundation (2004)
- Peter Marks Prize for Solid State Physics, Princeton University (2004)

PROGRAM AFFILIATIONS

- Stanford SystemX Alliance

PROFESSIONAL EDUCATION

- PhD, Harvard University , Applied Physics (2010)
- MS, Harvard University , Applied Physics (2006)
- BSE, Princeton University , Electrical Engineering (2004)

PATENTS

- Federico Capasso, Nanfang Yu, Jonathan Fan. "United States Patent US8328396 Methods and apparatus for improving collimation of radiation beams", President And Fellows Of Harvard College, Dec 11, 2012

LINKS

- My Lab Site: <https://fanlab.stanford.edu>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

We are interested in designing and engineering new nanoplasmonic platforms, including those fabricated by top-down and bottom-up processes, for the purposes of developing new sensors, beam steering platforms, active on-chip optical components, and modulators. We are also interested in exploring new material platforms, utilizing stretchable and thin-film materials, that integrate optical and electronic functionality for the purposes of realizing new body-worn and bio-medical devices.

Teaching

COURSES

2018-19

- Advanced Micro and Nano Fabrication Laboratory: ENGR 241 (Aut)
- Electromagnetic Waves: EE 242 (Aut)
- Engineering Electromagnetics: EE 142 (Spr)

2017-18

- Advanced Micro and Nano Fabrication Laboratory: ENGR 241 (Aut)
- Electromagnetic Waves: EE 242 (Win)
- Engineering Electromagnetics: EE 142 (Aut)

2016-17

- Advanced Topics in Nano-Optics and Plasmonics: EE 349 (Spr)
- Electromagnetic Waves: EE 242 (Win)
- Engineering Electromagnetics: EE 142 (Aut)

2015-16

- Advanced Topics in Nano-Optics and Plasmonics: EE 349 (Spr)
- Electromagnetic Waves: EE 242 (Win)
- Engineering Electromagnetics: EE 142 (Aut)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Po-Hsun Ho, Shangjie Yu

Doctoral Dissertation Advisor (AC)

Lucia Gan, Evan Wang

Master's Program Advisor

Brian Jun

Postdoctoral Research Mentor

Po-Hsun Ho

Publications

PUBLICATIONS

- **Experimental and Theoretical Studies of Serpentine Microstructures Bonded To Prestrained Elastomers for Stretchable Electronics** *ADVANCED FUNCTIONAL MATERIALS*
Zhang, Y., Wang, S., Li, X., Fan, J. A., Xu, S., Song, Y. M., Choi, K., Yeo, W., Lee, W., Nazaar, S. N., Lu, B., Yin, L., Hwang, et al
2014; 24 (14): 2028-2037
- **Fractal design concepts for stretchable electronics** *NATURE COMMUNICATIONS*
Fan, J. A., Yeo, W., Su, Y., Hattori, Y., Lee, W., Jung, S., Zhang, Y., Liu, Z., Cheng, H., Falgout, L., Bajema, M., Coleman, T., Gregoire, et al
2014; 5
- **Spectrally selective chiral silicon metasurfaces based on infrared Fano resonances.** *Nature communications*
Wu, C., Arju, N., Kelp, G., Fan, J. A., Dominguez, J., Gonzales, E., Tutuc, E., Brener, I., Shvets, G.
2014; 5: 3892-?
- **Ultrasoother, Highly Spherical Monocrystalline Gold Particles for Precision Plasmonics** *ACS NANO*
Lee, Y., Schade, N. B., Sun, L., Fan, J. A., Bae, D. R., Mariscal, M. M., Lee, G., Capasso, F., Sacanna, S., Manoharan, V. N., Yi, G.
2013; 7 (12): 11064-11070
- **Tetrahedral Colloidal Clusters from Random Parking of Bidisperse Spheres** *PHYSICAL REVIEW LETTERS*
Schade, N. B., Holmes-Cerfon, M. C., Chen, E. R., Aronzon, D., Collins, J. W., Fan, J. A., Capasso, F., Manoharan, V. N.
2013; 110 (14)
- **Stretchable batteries with self-similar serpentine interconnects and integrated wireless recharging systems** *NATURE COMMUNICATIONS*
Xu, S., Zhang, Y., Cho, J., Lee, J., Huang, X., Jia, L., Fan, J. A., Su, Y., Su, J., Zhang, H., Cheng, H., Lu, B., Yu, et al
2013; 4
- **Plasmonic Mode Engineering with Templated Self-Assembled Nanoclusters** *NANO LETTERS*
Fan, J. A., Bao, K., Sun, L., Bao, J., Manoharan, V. N., Nordlander, P., Capasso, F.
2012; 12 (10): 5318-5324
- **Near-Normal Incidence Dark-Field Microscopy: Applications to Nanoplasmonic Spectroscopy** *NANO LETTERS*
Fan, J. A., Bao, K., Lassiter, J. B., Bao, J., Halas, N. J., Nordlander, P., Capasso, F.
2012; 12 (6): 2817-2821
- **DNA-Enabled Self-Assembly of Plasmonic Nanoclusters** *NANO LETTERS*
Fan, J. A., He, Y., Bao, K., Wu, C., Bao, J., Schade, N. B., Manoharan, V. N., Shvets, G., Nordlander, P., Liu, D. R., Capasso, F.
2011; 11 (11): 4859-4864
- **Fano-like Interference in Self-Assembled Plasmonic Tetramer Clusters** *NANO LETTERS*
Fan, J. A., Bao, K., Wu, C., Bao, J., Bardhan, R., Halas, N. J., Manoharan, V. N., Shvets, G., Nordlander, P., Capasso, F.
2010; 10 (11): 4680-4685
- **Designer spoof surface plasmon structures collimate terahertz laser beams** *NATURE MATERIALS*
Yu, N., Wang, Q. J., Kats, M. A., Fan, J. A., Khanna, S. P., Li, L., Davies, A. G., Linfield, E. H., Capasso, F.
2010; 9 (9): 730-735
- **Self-Assembled Plasmonic Nanoparticle Clusters** *SCIENCE*
Fan, J. A., Wu, C., Bao, K., Bao, J., Bardhan, R., Halas, N. J., Manoharan, V. N., Nordlander, P., Shvets, G., Capasso, F.
2010; 328 (5982): 1135-1138
- **Small-divergence semiconductor lasers by plasmonic collimation** *NATURE PHOTONICS*
Yu, N., Fan, J., Wang, Q. J., Pfluegl, C., Diehl, L., Edamura, T., Yamanishi, M., Kan, H., Capasso, F.
2008; 2 (9): 564-570
- **Single-mode laser action in quantum cascade lasers with spiral-shaped chaotic resonators** *APPLIED PHYSICS LETTERS*

Audet, R., Belkin, M. A., Fan, J. A., Lee, B. G., Lin, K., Capasso, F.
2007; 91 (13)