Stanford

Amir Safavi-Naeini

Associate Professor of Applied Physics and, by courtesy, of Electrical Engineering

Bio

ACADEMIC APPOINTMENTS

- Associate Professor, Applied Physics
- Associate Professor (By courtesy), Electrical Engineering
- Member, Bio-X

PROGRAM AFFILIATIONS

- Stanford SystemX Alliance

PROFESSIONAL EDUCATION

- Ph.D., California Institute of Technology , Applied Physics (2013)
- B.ASc., University of Waterloo , Electrical Engineering (2008)

PATENTS

- Jeremy D Witmer, Patricio Arrangoiz-Arriola, Jeff T Hill, Amir H Safavi-Naeini, Timothy Patrick McKenna. "United States Patent US20180113373A1 Doubly-resonant electro-optic conversion using a superconducting microwave resonator", Leland Stanford Junior University, Oct 23, 2017
- Oskar Painter, Martin WINGER, Qiang Lin, Amir SAFAVI-NAEINI, Thiago ALEGRE, Timothy Dobson BLASIUS, Alexander Grey KRAUSE. "United States Patent US20130121633 A1 Systems and methods for tuning a cavity", California Institute Of Technology, Nov 11, 2011

LINKS

- Lab Site: https://web.stanford.edu/~safavi/

Teaching

COURSES

2025-26

- Atoms, Fields and Photons: APPPHYS 203 (Aut)
- Quantum Hardware: APPPHYS 228 (Win)

2024-25

- Atoms, Fields and Photons: APPPHYS 203 (Aut)
- Quantum Hardware: APPPHYS 228 (Win)

2023-24

- Atoms, Fields and Photons: APPPHYS 203 (Aut)

- Quantum Hardware: APPPHYS 228 (Win)

2022-23

- Atoms, Fields and Photons: APPPHYS 203 (Aut)
- Quantum Hardware: APPPHYS 228 (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Olivia Long, Michelle Wu, Janet Zhong, Cady van Assendelft

Postdoctoral Faculty Sponsor

Yizhi Luo, Hongyan Mei, Pau Molet Bachs, Tian Xie, Yun Zhao

Doctoral Dissertation Advisor (AC)

Nancy Ammar, Devin Dean, Helena Guan, Oliver Hitchcock, Alex Hwang, Chou-Wei Kiang, Takuma Makihara, Matthew Maksymowych, Sultan Malik, Gitanjali Multani, Nelson Ooi, Taewon Park, Luke Qi, Sam Robison, Ethan Rosenfeld, Erik Szakiel, Ziyu Wang, Linus Woodard, Zelong Yin

Doctoral Dissertation Co-Advisor (AC)

Debadri Das, Nick Gharabaghi, Kaveh Pezeshki

Doctoral (Program)

Jonathan Jeffrey, Pranav Kakhandiki, Vasily Kruzhilin, Kaden Loring, Pranav Parakh, Kaushal Shyamsundar, Tatiana Smorodnikova, Zelong Yin

Publications

PUBLICATIONS

- **Robotic chip-scale nanofabrication for superior consistency** *APPLIED PHYSICS LETTERS*
  Mayor, F. M., Guan, W., Szakiel, E., Safavi-Naeini, A. H., Gyger, S.
  2026; 128 (14)
- **Correlated dephasing in a piezoelectrically transduced silicon phononic waveguide** *PHYSICAL REVIEW APPLIED*
  Hitchcock, O. A., Mayor, F. M., Jiang, W., Maksymowych, M. P., Malik, S., Safavi-Naeini, A. H.
  2026; 25 (2)
- **Integrated millimeter-wave cavity electro-optic transduction.** *Nature communications*
  Multani, K. K., Herrmann, J. F., Nanni, E. A., Safavi-Naeini, A. H.
  2026
- **Low-power integrated optical amplification through second-harmonic resonance.** *Nature*
  Dean, D. J., Park, T., Stokowski, H. S., Qi, L., Robison, S., Hwang, A. Y., Herrmann, J. F., Fejer, M. M., Safavi-Naeini, A. H.
  2026; 649 (8099): 1159-1164
- **Quantum critical electro-optic and piezo-electric nonlinearities.** *Science (New York, N.Y.)*
  Anderson, C. P., Scuri, G., Chan, A., Eun, S., White, A. D., Ahn, G. H., Jilly, C., Safavi-Naeini, A., Van Gasse, K., Li, L., Vučković, J.
  2025; 390 (6771): 394-399
- **Roughness-Limited Performance in Ultra-Low-Loss Lithium Niobate Cavities** *ADVANCED OPTICAL MATERIALS*
  Khalatpour, A., Qi, L., Fejer, M. M., Safavi-Naeini, A. H.
  2025
- **Spectral diffusion of nanomechanical resonators due to single quantum defects** *PHYSICAL REVIEW APPLIED*
  Maksymowych, M. P., Yuksel, M., Hitchcock, O. A., Lee, N. R., Mayor, F. M., Jiang, W., Roukes, M. L., Safavi-Naeini, A. H.
  2025; 24 (4)

- **Integrated phononic waveguide on thin-film lithium niobate on diamond** *APPLIED PHYSICS LETTERS*
  Malik, S., Mayor, F. M., Jiang, W., Oh, H., Padgett, C., Dharod, V., Venkatraman, J., Jayich, A., Safavi-Naeini, A. H.
  2025; 127 (15)
- **Optically accessible high-finesse millimeter-wave resonator for cavity quantum electrodynamics with atom arrays** *PHYSICAL REVIEW APPLIED*
  Zhang, T., Wu, M., Cohen, S. R., Xin, L., Das, D., Multani, K. K. S., Peard, N., Valente-Feliciano, A., Welander, P. B., Safavi-Naeini, A. H., Nanni, E. A., Schleier-Smith, M.
  2025; 24 (4)
- **Low-loss, highly tunable Sagnac loop reflectors and Fabry-Perot cavities on thin-film lithium niobate** *OPTICS LETTERS*
  Qi, L., Khalatpour, A., Herrmann, J. F., Park, T., Dean, D., Robison, S., Hwang, A., Stokowski, H., Serkland, D., Fejer, M. M., Safavi-Naeini, A. H.
  2025; 50 (16): 5173-5176
- **Surface and bulk two-level-system losses in lithium niobate acoustic resonators** *PHYSICAL REVIEW APPLIED*
  Gruenke-Freudenstein, R. G., Szakiel, E., Multani, G. P., Makihara, T., Hayden, A. G., Khalatpour, A., Wollack, E., Akoto-Yeboah, A., Salmani-Rezaie, S., Safavi-Naeini, A. H.
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- **High photon-phonon pair generation rate in a two-dimensional optomechanical crystal.** *Nature communications*
  Mayor, F. M., Malik, S., Primo, A. G., Gyger, S., Jiang, W., Alegre, T. P., Safavi-Naeini, A. H.
  2025; 16 (1): 2576
- **Proposal for superconducting quantum networks using multioctave transduction to lower frequencies** *PHYSICAL REVIEW A*
  Makihara, T., Jiang, W., Safavi-Naeini, A. H.
  2025; 111 (1)
- **Quantum limits of superconducting-photonic links and their extension to millimeter waves** *PHYSICAL REVIEW APPLIED*
  Multani, K. K. S., Jiang, W., Nanni, E. A., Safavi-Naeini, A. H.
  2024; 22 (5)
- **Roles of temperature, materials, and domain inversion in high-performance, low-bias-drift thin film lithium niobate blue light modulators** *OPTICS EXPRESS*
  Celik, O., Ammar, N., Park, T., Stokowski, H. S., Multani, K. K. S., Hwang, A. Y., Gyger, S., Guo, Y., Fejer, M. M., Safavi-Naeini, A. H.
  2024; 32 (21): 36160-36170
- **Vacuum Beam Guide for Large Scale Quantum Networks.** *Physical review letters*
  Huang, Y., Salces-Carcoba, F., Adhikari, R. X., Safavi-Naeini, A. H., Jiang, L.
  2024; 133 (2): 020801
- **Studying phonon coherence with a quantum sensor.** *Nature communications*
  Cleland, A. Y., Wollack, E. A., Safavi-Naeini, A. H.
  2024; 15 (1): 4979
- **A parametrically programmable delay line for microwave photons.** *Nature communications*
  Makihara, T., Lee, N., Guo, Y., Guan, W., Safavi-Naeini, A.
  2024; 15 (1): 4640
- **Quantum control and noise protection of a Floquet 0-π qubit** *PHYSICAL REVIEW A*
  Wang, Z., Safavi-Naeini, A. H.
  2024; 109 (4)
- **Picojoule-level supercontinuum generation in thin-film lithium niobate on sapphire** *OPTICS EXPRESS*
  Hamrouni, M., Jankowski, M., Hwang, A. Y., Flemens, N., Mishra, J., Langrock, C., Safavi-Naeini, A., Fejer, M. M., Sudmeyer, T.
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- **Surface modification and coherence in lithium niobate SAW resonators.** *Scientific reports*
  Gruenke, R. G., Hitchcock, O. A., Wollack, E. A., Sarabalis, C. J., Jankowski, M., McKenna, T. P., Lee, N. R., Safavi-Naeini, A. H.
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- **Efficient parametric down-conversion by gain-trapped solitons** *OPTICA*
  Hamrouni, M., Jankowski, M., Hwang, A. Y., Jornod, N., Mishra, J., Stokowski, H. S., Mckenna, T. P., Langrock, C., Sudmeyer, T., Safavi-Naeini, A., Fejer, M. M.
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- **Single-mode squeezed-light generation and tomography with an integrated optical parametric oscillator.** *Science advances*
  Park, T., Stokowski, H., Ansari, V., Gyger, S., Multani, K. K., Celik, O. T., Hwang, A. Y., Dean, D. J., Mayor, F., McKenna, T. P., Fejer, M. M., Safavi-Naeini, A.
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- **Arbitrary electro-optic bandwidth and frequency control in lithium niobate optical resonators.** *Optics express*
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- **Strong Dispersive Coupling Between a Mechanical Resonator and a Fluxonium Superconducting Qubit** *PRX QUANTUM*
  Lee, N. R. A., Guo, Y., Cleland, A. Y., Wollack, E., Gruenke, R. G., Makihara, T., Wang, Z., Rajabzadeh, T., Jiang, W., Mayor, F. M., Arrangoiz-Arriola, P., Sarabalis, C. J., Safavi-Naeini, et al
  2023; 4 (4)

- **Efficient Photonic Integration of Diamond Color Centers and Thin-Film Lithium Niobate** *ACS PHOTONICS*
  Riedel, D., Lee, H., Herrmann, J. F., Grzesik, J., Ansari, V., Borit, J., Stokowski, H. S., Aghaeimeibodi, S., Lu, H., McQuade, P. J., Melosh, N. A., Shen, Z., Safavi-Naeini, et al
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- **Mid-infrared spectroscopy with a broadly tunable thin-film lithium niobate optical parametric oscillator** *OPTICA*
  Hwang, A., Stokowski, H. S., Park, T., Jankowski, M., Mckenna, T. P., Langrock, C., Mishra, J., Ansari, V., Fejer, M. M., Safavi-Naeini, A. H.
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- **Analysis of arbitrary superconducting quantum circuits accompanied by a Python package: SQcircuit** *QUANTUM*
  Rajabzadeh, T., Wang, Z., Lee, N., Makihara, T., Guo, Y., Safavi-Naeini, A. H.
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- **Flexible integration of gigahertz nanomechanical resonators with a superconducting microwave resonator using a bonded flip-chip method** *APPLIED PHYSICS LETTERS*
  Malik, S., Jiang, W., Mayor, F. M., Makihara, T., Safavi-Naeini, A. H.
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- **Identifying the Microscopic Nature of Two Level System Loss Channels in Acoustic Devices Using X-ray Photoelectron Spectroscopy and Atomic Force Microscopy.** *Microscopy and microanalysis : the official journal of Microscopy Society of America, Microbeam Analysis Society, Microscopical Society of Canada*
  Gruenke, R., Multani, G., Hitchcock, O., Wollack, E. A., Szakiel, E., Sarabalis, C., Lee, N., Cleland, A., Safavi-Naeini, A.
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- **Optically heralded microwave photon addition** *NATURE PHYSICS*
  Jiang, W., Mayor, F. M., Malik, S., Van Laer, R., McKenna, T. P., Patel, R. N., Witmer, J. D., Safavi-Naeini, A. H.
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- **Integrated quantum optical phase sensor in thin film lithium niobate.** *Nature communications*
  Stokowski, H. S., McKenna, T. P., Park, T., Hwang, A. Y., Dean, D. J., Celik, O. T., Ansari, V., Fejer, M. M., Safavi-Naeini, A. H.
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- **Platform-agnostic waveguide integration of high-speed photodetectors with evaporated tellurium thin films** *OPTICA*
  Ahn, G., White, A. D., Kim, H., Higashitarumizu, N., Mayor, F. M., Herrmann, J. F., Jiang, W., Multani, K. K. S., Safavi-Naeini, A. H., Javey, A., Vuckovic, J.
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- **Bias-stable Sub-Volt Visible Electro-optic Modulator in Thin-Film Lithium Niobate**
  Celik, O., Ammar, N., Stokowski, H. S., Park, T., Safavi-Naeini, A., IEEE
  IEEE.2023

- **Tunable dual wavelength laser on thin film lithium niobate**
  Lufungula, I., Mayor, F. M., Herrmann, J. F., Park, T., Stokowski, H. S., Hwang, A. Y., De Beeck, C., Atalar, O., Jiang, W., Kuyken, B., Safavi-Naeini, A. H., IEEE
  IEEE.2023

- **Y-Z cut lithium niobate longitudinal piezoelectric resonant photoelastic modulator** *OPTICS EXPRESS*
  Atalar, O., Yee, S., Safavi-Naeini, A., Arbabian, A.
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- **Integrated passive nonlinear optical isolators** *NATURE PHOTONICS*
  White, A. D., Ahn, G., Gasse, K., Yang, K., Chang, L., Bowers, J. E., Vuckovic, J.
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- **Ultra-broadband mid-infrared generation in dispersion-engineered thin-film lithium niobate** *OPTICS EXPRESS*
  Mishra, J., Jankowski, M., Hwang, A. Y., Stokowski, H. S., McKenna, T. P., Langrock, C., Ng, E., Heydari, D., Mabuchi, H., Safavi-Naeini, A. H., Fejer, M. M.
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- **Ultra-low-power second-order nonlinear optics on a chip.** *Nature communications*
  McKenna, T. P., Stokowski, H. S., Ansari, V., Mishra, J., Jankowski, M., Sarabalis, C. J., Herrmann, J. F., Langrock, C., Fejer, M. M., Safavi-Naeini, A. H.
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- **Mirror symmetric on-chip frequency circulation of light** *NATURE PHOTONICS*
  Herrmann, J. F., Ansari, V., Wang, J., Witmer, J. D., Fan, S., Safavi-Naeini, A. H.
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- **High-bandwidth CMOS-voltage-level electro-optic modulation of 780 nm light in thin-film lithium niobate** *OPTICS EXPRESS*
  Celik, O., Sarabalis, C. J., Mayor, F. M., Stokowski, H. S., Herrmann, J. F., McKenna, T. P., Lee, N. R. A., Jiang, W., Multani, K. K. S., Safavi-Naeini, A. H.
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- **High-efficiency second harmonic generation of blue light on thin-film lithium niobate.** *Optics letters*
  Park, T., Stokowski, H. S., Ansari, V., McKenna, T. P., Hwang, A. Y., Fejer, M. M., Safavi-Naeini, A. H.
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- **Automated Discovery of Autonomous Quantum Error Correction Schemes** *PRX QUANTUM*
  Wang, Z., Rajabzadeh, T., Lee, N., Safavi-Naeini, A. H.
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- **Quantum state preparation and tomography of entangled mechanical resonators.** *Nature*
  Wollack, E. A., Cleland, A. Y., Gruenke, R. G., Wang, Z., Arrangoiz-Arriola, P., Safavi-Naeini, A. H.
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- **Longitudinal piezoelectric resonant photoelastic modulator for efficient intensity modulation at megahertz frequencies.** *Nature communications*
  Atalar, O., Van Laer, R., Safavi-Naeini, A. H., Arbabian, A.
  2022; 13 (1): 1526

- **Building a Fault-Tolerant Quantum Computer Using Concatenated Cat Codes** *PRX QUANTUM*
  Chamberland, C., Noh, K., Arrangoiz-Arriola, P., Campbell, E. T., Hann, C. T., Iverson, J., Putterman, H., Bohdanowicz, T. C., Flammia, S. T., Keller, A., Refael, G., Preskill, J., Jiang, et al

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- **2022 Roadmap on integrated quantum photonics** *JOURNAL OF PHYSICS-PHOTONICS*
  Moody, G., Sorger, V. J., Blumenthal, D. J., Juodawlkis, P. W., Loh, W., Sorace-Agaskar, C., Jones, A. E., Balram, K. C., Matthews, J. C. F., Laing, A., Davanco, M., Chang, L., Bowers, et al
  2022; 4 (1)
- **Superconducting on-chip tunable mm-wave resonator**
  Das, D., Naji, A., Multani, K. K. S., Safavi-Naeini, A. H., Nanni, E. A., IEEE
  IEEE.2022
- **III/V-on-lithium niobate amplifiers and lasers** *OPTICA*
  de Beeck, C., Mayor, F. M., Cuyvers, S., Poelman, S., Herrmann, J. F., Atalar, O., McKenna, T. P., Haq, B., Jiang, W., Witmer, J. D., Roelkens, G., Safavi-Naeini, A. H., Van Laer, et al
  2021; 8 (10): 1288-1289
- **Control Design for Inhomogeneous-Broadening Compensation in Single-Photon** *PHYSICAL REVIEW APPLIED*
  Mishra, S., Trivedi, R., Safavi-Naeini, A. H., Vuckovic, J.
  2021; 16 (4)
- **Mid-infrared nonlinear optics in thin-film lithium niobate on sapphire** *OPTICA*
  Mishra, J., McKenna, T. P., Ng, E., Stokowski, H. S., Jankowski, M., Langrock, C., Heydari, D., Mabuchi, H., Fejer, M. M., Safavi-Naeini, A. H.
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- **Number Partitioning With Grover's Algorithm in Central Spin Systems** *PRX QUANTUM*
  Anikeeva, G., Markovic, O., Borish, V., Hines, J. A., Rajagopal, S., Cooper, E. S., Periwal, A., Safavi-Naeini, A., Davis, E. J., Schleier-Smith, M.
  2021; 2 (2)
- **Acousto-optic modulation of a wavelength-scale waveguide** *OPTICA*
  Sarabalis, C. J., Van Laer, R., Patel, R. N., Dahmani, Y. D., Jiang, W., Mayor, F. M., Safavi-Naeini, A. H.
  2021; 8 (4): 477-483
- **Loss channels affecting lithium niobate phononic crystal resonators at cryogenic temperature** *APPLIED PHYSICS LETTERS*
  Wollack, E., Cleland, A. Y., Arrangoiz-Arriola, P., McKenna, T. P., Gruenke, R. G., Patel, R. N., Jiang, W., Sarabalis, C. J., Safavi-Naeini, A. H.
  2021; 118 (12)
- **Development of Quantum Interconnects (QuICs) for Next-Generation Information Technologies** *PRX QUANTUM*
  Awschalom, D., Berggren, K. K., Bernien, H., Bhave, S., Carr, L. D., Davids, P., Economou, S. E., Englund, D., Faraon, A., Fejer, M., Guha, S., Gustafsson, M., Hu, et al
  2021; 2 (1)
- **Gigahertz Phononic Integrated Circuits on Thin-Film Lithium Niobate on Sapphire** *PHYSICAL REVIEW APPLIED*
  Mayor, F. M., Jiang, W., Sarabalis, C. J., McKenna, T. P., Witmer, J. D., Safavi-Naeini, A. H.
  2021; 15 (1)
- **Fully-Resonant Second Harmonic Generation in Periodically Poled Thin-Film Lithium Niobate**
  McKenna, T. P., Stokowski, H. S., Ansari, V., Mishra, J., Jankowski, M., Sarabalis, C. J., Herrmann, J. F., Langrock, C., Fejer, M. M., Safavi-Naeini, A. H., IEEE
  IEEE.2021
- **Room-Temperature Mechanical Resonator with a Single Added or Subtracted Phonon.** *Physical review letters*
  Patel, R. N., McKenna, T. P., Wang, Z., Witmer, J. D., Jiang, W., Van Laer, R., Sarabalis, C. J., Safavi-Naeini, A. H.
  2021; 127 (13): 133602
- **Photonic Modal Circulator Using Temporal Refractive-Index Modulation with Spatial Inversion Symmetry.** *Physical review letters*
  Wang, J., Herrmann, J. F., Witmer, J. D., Safavi-Naeini, A. H., Fan, S.
  2021; 126 (19): 193901
- **Quantum Control of Microwave-to-Optical Transducers for Inhomogeneous Broadening Compensation**
  Mishra, S., Trivedi, R., Safavi-Naeini, A. H., Vuckovic, J., IEEE
  IEEE.2021

- **Integrated thin-film lithium niobate non-reciprocal circulator**
  Herrmann, J. F., Ansari, V., Wang, J., Witmer, J. D., Fan, S., Safavi-Naeini, A. H., IEEE
  IEEE.2021
- **Photonic modal circulator using dynamic modulation with mirror symmetry**
  Wang, J., Herrmann, J., Witmer, J., Safavi-Naeini, A. H., Fan, S., IEEE
  IEEE.2021
- **Mid-infrared nonlinear optics in thin-film lithium niobate on sapphire**
  Mishra, J., McKenna, T. P., Ng, E., Stokowski, H. S., Jankowski, M., Langrock, C., Heydari, D., Mabuchi, H., Safavi-Naeini, A. H., Fejer, M. M., IEEE
  IEEE.2021
- **Optical Parametric Oscillator in Thin-Film Lithium Niobate with a 130 mu W Threshold**
  Stokowski, H. S., McKenna, T. P., Ansari, V., Mishra, J., Jankowski, M., Sarabalis, C. J., Herrmann, J. F., Langrock, C., Fejer, M. M., Safavi-Naeini, A. H., IEEE
  IEEE.2021
- **Cryogenic microwave-to-optical conversion using a triply resonant lithium-niobate-on-sapphire transducer** *OPTICA*
  McKenna, T. P., Witmer, J. D., Patel, R. N., Jiang, W., Van Laer, R., Arrangoiz-Arriola, P., Wollack, E., Herrmann, J. F., Safavi-Naeini, A. H.
  2020; 7 (12): 1737–45
- **Nanobenders as efficient piezoelectric actuators for widely tunable nanophotonics at CMOS-level voltages** *COMMUNICATIONS PHYSICS*
  Jiang, W., Mayor, F. M., Patel, R. N., McKenna, T. P., Sarabalis, C. J., Safavi-Naeini, A. H.
  2020; 3 (1)
- **Acousto-optic modulation in lithium niobate on sapphire** *APL PHOTONICS*
  Sarabalis, C. J., McKenna, T. P., Patel, R. N., Van Laer, R., Safavi-Naeini, A. H.
  2020; 5 (8)
- **A silicon-organic hybrid platform for quantum microwave-to-optical transduction** *QUANTUM SCIENCE AND TECHNOLOGY*
  Witmer, J. D., McKenna, T. P., Arrangoiz-Arriola, P., Van Laer, R., Alex Wollack, E., Lin, F., Jen, A., Luo, J., Safavi-Naeini, A. H.
  2020; 5 (3)
- **Piezoelectric Transduction of a Wavelength-Scale Mechanical Waveguide** *PHYSICAL REVIEW APPLIED*
  Dahmani, Y. D., Sarabalis, C. J., Jiang, W., Mayor, F. M., Safavi-Naeini, A. H.
  2020; 13 (2)
- **Time-of-flight imaging based on resonant photoelastic modulation (vol 58, pg 2235, 2019)** *APPLIED OPTICS*
  Atalar, O., Van Laer, R., Sarabalis, C. J., Safavi-Naeini, A. H., Arbabian, A.
  2020; 59 (5): 1430
- **S-band delay lines in suspended lithium niobate** *JOURNAL OF APPLIED PHYSICS*
  Sarabalis, C. J., Dahmani, Y. D., Cleland, A. Y., Safavi-Naeini, A. H.
  2020; 127 (5)
- **Lithium Niobate Resonant Photoelastic Modulator for Time-of-Flight Imaging**
  Atalar, O., Van Laer, R., Sarabalis, C. J., Safavi-Naeini, A. H., Arbabian, A., IEEE
  IEEE.2020
- **Development of a Millimeter-Wave Transducer for Quantum Networks**
  Multani, K. K. S., Stokowski, H., Snively, E., Patel, R., Jiang, W., Lee, N., Welander, P. B., Nanni, E. A., Safavi-Naeini, A. H., IEEE
  IEEE.2020
- **Efficient bidirectional piezo-optomechanical transduction between microwave and optical frequency.** *Nature communications*
  Jiang, W. n., Sarabalis, C. J., Dahmani, Y. D., Patel, R. N., Mayor, F. M., McKenna, T. P., Van Laer, R. n., Safavi-Naeini, A. H.
  2020; 11 (1): 1166
- **Photonics-to-Free-Space Interface in Lithium Niobate-on-Sapphire**
  Rajabzadeh, T., Sarabalis, C. J., Atalar, O., Safavi-Naeini, A. H., IEEE
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- **Acousto-Optics in Lithium Niobate-on-Sapphire**
  Sarabalis, C. J., McKenna, T. P., Patel, R. N., Safavi-Naeini, A. H., IEEE
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