

Stanford



Mohammad Taghinejad

Postdoctoral Scholar, Materials Science and Engineering

Bio

BIO

My Research Interests: Terahertz science and technology; Ultrafast optics and photonics; Photocarrier dynamics; Nonlinear optics; Nanophotonics and plasmonics; Optical data processing and communication; Sensing, metrology, and spectroscopy; Quantum materials; Quantum transport; Low-dimensional materials.

HONORS AND AWARDS

- Sigma Xi Best Ph.D. Thesis Award, Georgia Institute of Technology (March 2021)
- SPIE Optics and Photonics Education Scholarship, Society of Photo-optical Instrumentation Engineers (SPIE) (May 2020)
- The ECE Graduate Research Assistant Excellence Award, Georgia Institute of Technology (March 2020)
- The Best Poster Award in IEEE Photonics Conference, Institute of Electrical and Electronics Engineers (IEEE) (October 2017)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Associate Editor, Journal of Nanophotonics (2023 - present)
- Invited Guest Editor, Journal: Electronics (Special Issue) (2021 - present)
- Invited Guest Editor, Journal: Symmetry (Special Issue) (2021 - present)

PROFESSIONAL EDUCATION

- Master of Science in Engr, Georgia Institute of Technology (2016)
- Doctor of Philosophy, Georgia Institute of Technology (2020)
- Master of Science in Engr, University Of Tehran (2013)
- Bachelor of Engineering, University Of Shiraz (2010)
- Ph.D., Georgia Institute of Technology , Electrical & Computer Engineering (2020)
- M.Sc., Georgia Institute of Technology , Materials Science & Engineering (2016)
- M.Sc., University of Tehran , Solid State Physics & Electronics (2014)

STANFORD ADVISORS

- Mark Brongersma, Postdoctoral Faculty Sponsor

LINKS

- Google Scholar: https://scholar.google.com/citations?hl=en&user=NlcJhAkAAAAJ&view_op=list_works&sortby=pubdate
- LinkedIn: <https://www.linkedin.com/in/mohammad-taghinejad-84b9a29b/>
- ResearchGate: <https://www.researchgate.net/profile/Mohammad-Taghinejad>

Research & Scholarship

RESEARCH INTERESTS

- Race and Ethnicity
- Research Methods
- Science Education
- Technology and Education

Publications

PUBLICATIONS

- **Determining hot-carrier transport dynamics from terahertz emission.** *Science (New York, N.Y.)*
Taghinejad, M., Xia, C., Hrton, M., Lee, K. T., Kim, A. S., Li, Q., Guzelturk, B., Kalousek, R., Xu, F., Cai, W., Lindenberg, A. M., Brongersma, M. L.
2023; 382 (6668): 299-305
- **Tailored Dispersion of Spectro-Temporal Dynamics in Hot-Carrier Plasmonics.** *Advanced science (Weinheim, Baden-Wurtemberg, Germany)*
Kim, A. S., Taghinejad, M., Goswami, A., Raju, L., Lee, K. T., Cai, W.
2023; 10 (8): e2205434
- **Electrically driven reprogrammable phase-change metasurface reaching 80% efficiency.** *Nature communications*
Abdollahramezani, S., Hemmatyar, O., Taghinejad, M., Taghinejad, H., Krasnok, A., Eftekhari, A. A., Teichrib, C., Deshmukh, S., El-Sayed, M. A., Pop, E., Wuttig, M., Alo, A., Cai, et al
2022; 13 (1): 1696
- **Engineering Radiative Energy Transfer and Directional Excitonic Emission in van der Waals Heterostructures** *LASER & PHOTONICS REVIEWS*
Liu, X., Mao, B., Yang, X., Taghinejad, M., Panmai, M., Lan, S., Cai, W., Li, B., Yan, J.
2022; 16 (6)
- **Dynamic Hybrid Metasurfaces.** *Nano letters*
Abdollahramezani, S. n., Hemmatyar, O. n., Taghinejad, M. n., Taghinejad, H. n., Kiarashinejad, Y. n., Zandehshahvar, M. n., Fan, T. n., Deshmukh, S. n., Eftekhari, A. A., Cai, W. n., Pop, E. n., El-Sayed, M. A., Adibi, et al
2021
- **Synthetic Engineering of Morphology and Electronic Band Gap in Lateral Heterostructures of Monolayer Transition Metal Dichalcogenides** *ACS NANO*
Taghinejad, H., Taghinejad, M., Eftekhari, A. A., Li, Z., West, M. P., Javani, M. H., Abdollahramezani, S., Zhang, X., Tian, M., Johnson-Averette, T., Ajayan, P. M., Vogel, E. M., Shi, et al
2020; 14 (5): 6323–30
- **PhotocARRIER-Induced Active Control of Second-Order Optical Nonlinearity in Monolayer MoS₂** *SMALL*
Taghinejad, M., Xu, Z., Wang, H., Taghinejad, H., Lee, K., Rodrigues, S. P., Adibi, A., Qian, X., Lian, T., Cai, W.
2020; 16 (5): e1906347
- **Transient Second-Order Nonlinear Media: Breaking the Spatial Symmetry in the Time Domain via Hot-Electron Transfer** *PHYSICAL REVIEW LETTERS*
Taghinejad, M., Xu, Z., Lee, K., Lian, T., Cai, W.
2020; 124 (1): 013901
- **Electrically Biased Silicon Metasurfaces with Magnetic Mie Resonance for Tunable Harmonic Generation of Light** *ACS PHOTONICS*
Lee, K., Taghinejad, M., Yan, J., Kim, A. S., Raju, L., Brown, D. K., Cai, W.
2019; 6 (11): 2663–70
- **All-Optical Control of Light in Micro- and Nanophotonics** *ACS PHOTONICS*
Taghinejad, M., Cai, W.
2019; 6 (5): 1082–93
- **Metasurfaces for Near-Eye Augmented Reality** *ACS PHOTONICS*
Lan, S., Zhang, X., Taghinejad, M., Rodrigues, S., Lee, K., Liu, Z., Cai, W.

2019; 6 (4): 864–70

- **Sharp and Tunable Crystal/Fano-Type Resonances Enabled by Out-of-Plane Dipolar Coupling in Plasmonic Nanopatch Arrays** *ANNALEN DER PHYSIK*
Taghinejad, M., Taghinejad, H., Malak, S. T., Moradinejad, H., Woods, E. V., Xu, Z., Liu, Y., Eftekhari, A. A., Lian, T., Tsukruk, V. V., Adibi, A.
2018; 530 (10)
- **Ultrafast Control of Phase and Polarization of Light Expedited by Hot-Electron Transfer** *NANO LETTERS*
Taghinejad, M., Taghinejad, H., Xu, Z., Lee, K., Rodrigues, S. P., Yan, J., Adibi, A., Lian, T., Cai, W.
2018; 18 (9): 5544–51
- **Strain relaxation via formation of cracks in compositionally modulated two-dimensional semiconductor alloys** *NPJ 2D MATERIALS AND APPLICATIONS*
Taghinejad, H., Eftekhari, A. A., Campbell, P. M., Beatty, B., Taghinejad, M., Zhou, Y., Perini, C. J., Moradinejad, H., Henderson, W. E., Woods, E. V., Zhang, X., Ajayan, P., Reed, et al
2018; 2: 1–8
- **Hot-Electron-Assisted Femtosecond All-Optical Modulation in Plasmonics** *ADVANCED MATERIALS*
Taghinejad, M., Taghinejad, H., Xu, Z., Liu, Y., Rodrigues, S. P., Lee, K., Lian, T., Adibi, A., Cai, W.
2018; 30 (9)
- **Lattice Plasmon Induced Large Enhancement of Excitonic Emission in Monolayer Metal Dichalcogenides** *PLASMONICS*
Taghinejad, H., Shams-Mousavi, S., Gong, Y., Taghinejad, M., Eftekhari, A. A., Ajayan, P., Adibi, A.
2017; 12 (6): 1975–1981
- **Preserving Spin States upon Reflection: Linear and Nonlinear Responses of a Chiral Meta-Mirror** *NANO LETTERS*
Kang, L., Rodrigues, S. P., Taghinejad, M., Lan, S., Lee, K., Liu, Y., Werner, D. H., Urbas, A., Cai, W.
2017; 17 (11): 7102–9
- **Dark plasmonic modes in diatomic gratings for plasmoelectronics** *LASER & PHOTONICS REVIEWS*
Lan, S., Rodrigues, S. P., Taghinejad, M., Cai, W.
2017; 11 (2)
- **Resonant Light-Induced Heating in Hybrid Cavity-Coupled 2D Transition-Metal Dichalcogenides** *ACS PHOTONICS*
Taghinejad, H., Taghinejad, M., Tarasov, A., Tsai, M., Hosseinnia, A. H., Moradinejad, H., Campbell, P. M., Eftekhari, A. A., Vogel, E. M., Adibi, A.
2016; 3 (4): 700–707
- **The conformal silicon deposition on carbon nanotubes as enabled by hydrogenated carbon coatings for synthesis of carbon/silicon core/shell heterostructure photodiodes** *CARBON*
Taghinejad, H., Taghinejad, M., Abdolahad, M., Rajabali, S., Rostamian, A., Mohajerzadeh, S., Hosseini, E.
2015; 87: 299–308
- **Integration of Ni₂Si/Si Nanograin Heterojunction on n-MOSFET to Realize High-Sensitivity Phototransistors** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
Taghinejad, M., Taghinejad, H., Ganji, M., Rostamian, A., Mohajerzadeh, S., Abdolahad, M., Kolahdouz, M.
2014; 61 (9): 3239–44
- **Cell-imprinted substrates act as an artificial niche for skin regeneration.** *ACS applied materials & interfaces*
Mashinchian, O., Bonakdar, S., Taghinejad, H., Satarifard, V., Heidari, M., Majidi, M., Sharifi, S., Peirovi, A., Saffar, S., Taghinejad, M., Abdolahad, M., Mohajerzadeh, S., Shokrgozar, et al
2014; 6 (15): 13280–13292
- **Realization of highly crystallographic three-dimensional nanosheets by a stress-induced oriented-diffusion method** *APPLIED PHYSICS LETTERS*
Gharooni, M., Hosseini, M., Mohajerzadeh, S., Taghinejad, M., Taghinejad, H., Abdi, Y.
2014; 105 (4)
- **Cell membrane electrical charge investigations by silicon nanowires incorporated field effect transistor (SiNWFET) suitable in cancer research** *RSC ADVANCES*
Abdolahad, M., Taghinejad, H., Saeidi, A., Taghinejad, M., Janmaleki, M., Mohajerzadeh, S.
2014; 4 (15): 7425–7431
- **A Nickel-Gold Bilayer Catalyst Engineering Technique for Self-Assembled Growth of Highly Ordered Silicon Nanotubes (SiNT)** *NANO LETTERS*
Taghinejad, M., Taghinejad, H., Abdolahad, M., Mohajerzadeh, S.

2013; 13 (3): 889–97

- **Fabrication and modeling of high sensitivity humidity sensors based on doped silicon nanowires** *SENSORS AND ACTUATORS B-CHEMICAL*
Taghinejad, H., Taghinejad, M., Abdolahad, M., Saeidi, A., Mohajerzadeh, S.
2013; 176: 413–19

- **Evaluation of the shear force of single cancer cells by vertically aligned carbon nanotubes suitable for metastasis diagnosis** *INTEGRATIVE BIOLOGY*
Abdolahad, M., Mohajerzadeh, S., Janmaleki, M., Taghinejad, H., Taghinejad, M.
2013; 5 (3): 535-542

- **Single-cell resolution diagnosis of cancer cells by carbon nanotube electrical spectroscopy** *NANOSCALE*
Abdolahad, M., Janmaleki, M., Taghinejad, M., Taghinejad, H., Salehi, F., Mohajerzadeh, S.
2013; 5 (8): 3421-3427

- **A vertically aligned carbon nanotube-based impedance sensing biosensor for rapid and high sensitive detection of cancer cells** *LAB ON A CHIP*
Abdolahad, M., Taghinejad, M., Taghinejad, H., Janmaleki, M., Mohajerzadeh, S.
2012; 12 (6): 1183-1190