

# KOOSHA NASSIRI NAZIF

Stanford, CA 94305 • [koosha@stanford.edu](mailto:koosha@stanford.edu) • [linkedin.com/in/koosha-nassiri-nazif](https://www.linkedin.com/in/koosha-nassiri-nazif)

## EDUCATION

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<b>Stanford University</b> , Stanford, CA, USA Ph.D., Electrical Engineering, Advisor: Prof. Krishna Saraswat Thesis: Transition Metal Dichalcogenides (TMDs) for Next-Generation Photovoltaics	04/2016 – 12/2021
<b>Stanford University</b> , Stanford, CA, USA Master of Science, Mechanical Engineering	09/2014 - 03/2016
<b>Sharif University of Technology</b> , Tehran, Iran Bachelor of Science, Mechanical Engineering	09/2010 - 07/2014

## WORK EXPERIENCE

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<b>Postdoctoral Scholar</b> , Pop Lab, Stanford University Advisor: Prof. Eric Pop Project: Flexible TMD Solar Panels and Sensors	01/2022 – Present
<b>Graduate Research Assistant</b> , Saraswat Group, Stanford University Advisor: Prof. Krishna Saraswat Project: High-Performance TMD Solar Cells	04/2016 – 12/2021
<b>Lecturer</b> , Stanford University Course: EE 237   Solar Energy Conversion	03/2019 – 03/2020
<b>Display Panel Quality Engineer: Data Science Intern</b> , Apple Inc.	06/2019 – 09/2019
<b>Lecturer</b> , Stanford University Course: EE 216   Principles and Models of Semiconductor Devices	06/2018 – 09/2018
<b>Research Associate Intern</b> , Hewlett Packard Labs, Hewlett Packard Enterprise (HPE) Project: Thermal Co-Design of Exascale Computing System in Packages (SiPs)	06/2017 – 09/2017
<b>Graduate Research Assistant</b> , Ginzton Lab, Stanford University Advisor: Prof. Shanhui Fan Project: Thermo-Mechanical Modeling & Optimization for Radiative Daytime Cooling Panels	06/2015 – 09/2015

## LEADERSHIP EXPERIENCE

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Co-President, IEEE Stanford Chapter	06/2019 – 05/2021
President, Cardinal Pitch Club (CPC)	09/2017 – 09/2018
Business Development Officer, Stanford Energy Club (SEC)	09/2014 – 06/2019
President, Persian Student Association (PSA), Stanford University	06/2017 – 06/2018

## HONORS AND AWARDS

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VPGE Graduate Scholar Award, Stanford University	2018
Teaching Fellowship Award, Electrical Engineering Department, Stanford University	2018
Stanford Graduate Engineering Fellowship Award, Stanford University	2014
Professor Joel H. Ferziger Memorial Fellowship Award, Stanford University	2014

## PATENTS

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- Neilson, K., **Nassiri Nazif, K.**, Daus, A. S., Pop, E. & Hamtaei, S. Method of fabricating high-efficiency transition metal dichalcogenide solar cells. *US 63/533.474, under review* (2023)
- Nassiri Nazif, K.**, Islam, R., Park, J., & Saraswat, K. C. Tandem solar cells having a top or bottom metal chalcogenide cell. *PCT/US2019/059849* (2019)

## JOURNAL PUBLICATIONS

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- Nassiri Nazif, K.**, Nitta, F. U., Daus, A., Saraswat, K. C., & Pop, E. Efficiency limit transition metal dichalcogenide solar cells. *Communications Physics, under review* (2023)

2. Kim, K.-H., Andreev, M, Choi, S., Shim, J., Ahn, H., Lynch, J., Lee, T., Lee, J., **Nassiri Nazif, K.**, Kumar, A., Kumar, P., Choo, H., Jariwala, D., Saraswat, K. C., & Park, J.-H. High-Efficiency WSe<sub>2</sub> Photovoltaic Devices with Electron-Selective Contacts, *ACS Nano* 16, 8827-8836 (2022)
3. **Nassiri Nazif, K.**, Daus, A., Hong, J., Lee, N., Vaziri, S., Kumar, A., Nitta, F., Chen, M. E., Kananian, S., Islam, R., Kim, K.-H., Park, J.-H., Poon, A. S. Y., Brongersma, M. L., Pop, E., & Saraswat, K. C. High-specific-power flexible transition metal dichalcogenide solar cells, *Nature Communications* 12, 7034 (2021)
4. **Nassiri Nazif, K.**, Kumar, A., Hong, J., Lee, N., Islam, R., McClellan, C. J., Karni, O., Van de Groep, J., Heinz, T. F., Pop, E., Brongersma, M. L., & Saraswat, K. C. High-performance p–n junction transition metal dichalcogenide photovoltaic cells enabled by MoO<sub>x</sub> doping and passivation. *Nano Letters* 21, 3443-3450 (2021)
5. Xue, M., **Nassiri Nazif, K.**, Lyu, Z., Jiang, J., Lu, C.-Y., Lee, N., Zang, K., Chen, Y., Zheng, T., Kamins, T. I., Brongersma, M. L., Saraswat, K. C., & Harris, J. S. Free-standing 2.7 μm thick ultrathin crystalline silicon solar cell with efficiency above 12.0%. *Nano Energy* 70, 104466 (2020)
6. Shayestehpour, H., **Nassiri Nazif, K.**, Soufi, A. M., & Saidi, M. S. Proposing a high-efficiency dielectrophoretic system for separation of dead and live cells, *Scientia Iranica* 25, 186-195 (2018)
7. Islam, R., **Nassiri Nazif, K.**, & Saraswat, K. C. Si Heterojunction solar cells: a simulation study of the design issues. *IEEE Trans. Electron Devices* 63, 4788– 4795 (2016)

### SELECTED PUBLICATIONS IN REFEREED CONFERENCES

1. **Nassiri Nazif, K.**, Nitta, F. U., Daus, A., Saraswat, K. C., & Pop, E. Efficiency limit transition metal dichalcogenide solar cells. *1st Middle East and North Africa Solar Conference*, Dubai, UAE (2023)
2. **(Invited Talk) Nassiri Nazif, K.**, Pop, E., & Saraswat, K. C. Transition metal dichalcogenide solar cells enabling widespread solar adoption. *IEEE International Flexible Electronics Technology Conference*, San Jose, CA, USA (2023)
3. **(Invited Talk) Nassiri Nazif, K.**, Saraswat, K. C., & Pop, E. Transition metal dichalcogenides for next-generation photovoltaics. *NextGen Solar Conference*, San Francisco, CA, USA (2023)
4. **Nassiri Nazif, K.**, Nitta, F. U., Daus, A., Saraswat, K. C., & Pop, E. Efficiency limit transition metal dichalcogenide solar cells. *IEEE Photovoltaic Specialists Conference (PVSC)*, San Juan, Puerto Rico (2023)
5. **Nassiri Nazif, K.**, Daus, A., Hong, J., Lee, N., Vaziri, S., Kumar, A., Nitta, F., Chen, M. E., Kananian, S., Islam, R., Kim, K.-H., Park, J.-H., Poon, A. S. Y., Brongersma, M. L., Pop, E., & Saraswat, K. C. *MRS Spring Meeting*, Honolulu, HI, USA (2022).
6. Daus, A., **Nassiri Nazif, K.**, Vaziri, S., *Khan, A. I.*, Grady, R.W., Chen, V., Bailey, C. S., Lee, H.R, Koroglu, C., Brenner, K., Schauble, K., Kumar, A., Saraswat, K. C., & Pop, E. Flexible transition metal dichalcogenide devices for environmental sensors and energy harvesting, *AVS 67th International Symposium & Exhibition*, Charlotte NC, USA (2021).
7. Kumar, A., **Nassiri Nazif, K.**, Ramesh, P., & Saraswat, K. C. Doped WS<sub>2</sub> transistors with large on-off ratio and high on-current, *IEEE Device Research Conference*, Columbus, OH, USA (2020)
8. **(Invited Talk) Nassiri Nazif, K.**, Kumar, A., Menezes, M. T. M., & Saraswat, K. C. Towards high  $V_{OC}$ , thin film, homojunction WS<sub>2</sub> solar cells for energy harvesting applications. *SPIE, Wide Bandgap Materials, Devices, and Applications IV Conference*, San Diego, CA, USA (2019)
9. **Nassiri Nazif, K.**, Kumari, N., & Silverthorn, S. Thermal Co-Design of Exascale Computing System in Packages (SiPs), *IEEE Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (ITherm)*, San Diego, CA, USA (2018)
10. Islam, R., **Nassiri Nazif, K.**, & Saraswat, K. C. Optimization of selective contacts in Si heterojunction photovoltaic cells considering Fermi level pinning and interface passivation. *IEEE Photovoltaic Specialists Conference (PVSC)*, Portland, OR, USA (2016)