Kevin Brenner
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Electrical and Computer Engineering
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Professional Preparation

Georgia Institute of Technology	Atlanta, GA	Electrical Engineering	B.S.	2007
Georgia Institute of Technology	Atlanta, GA	Electrical Engineering	M.S.	2009
Georgia Institute of Technology	Atlanta, GA	Electrical Engineering	Ph.D.	2013
Stanford University	Stanford, CA	Transport Phenomena	Postdoc	2019

Appointments

Southern Methodist University	Assistant Professor	2019-present
Caruth Institute for Engineering Education	Fellow	2019-present
Stanford University	Intelligence Community Postdoctoral Fellow	2017-2019
Harper Laboratories (startup)	Founder	2013-2017
Georgia Institute of Technology	Instructor of Record	2012-2013
Georgia Institute of Technology	Graduate Research Assistant	2009-2013

Select Honors

2022 Office of Naval Research's Summer Faculty Fellowship
2020 Nominated for Honoring our Professors' Excellence (HOPE) Professor of the Year Award
2017 Intelligence Community Postdoctoral Fellowship
2013 National Science Foundation's Small Business Innovation Research Program Award
2013 Department of Defense's Small Business Innovation Research Program Award(s)

Products

Journal Publications

17. J. Avendano-Bolivar, S. Parker, P. Xu, S. Wallen, M. Haberman, and **K. Brenner**. "The propagation of acoustic pressure at two-dimensional material interfaces," in preparation.
16. I. Datye, A. Daus, R. Grady, **K. Brenner**, S. Vaziri, and E. Pop, "Strain-enhanced mobility of monolayer MoS2." under review.
15. A. Daus, S. Vaziri, V. Chen, C. Koroglu, R. Grady, C. Bailey, H. Lee, K. Schauble, **K. Brenner**, and E. Pop, "High-performance flexible nanoscale field-effect transistors based on transition metal dichalcogenides," *Nature Electronics* 4, 495-501 (2021).
14. A. Kahn, P. Khakbaz, **K. Brenner**, K. Smithe, M. Mleczko, D. Esseni, and E. Pop . "Large temperature coefficient of resistance in atomically-thin two-dimensional materials," *Applied Physics Letters* 116, 203105 (2020).
13. B. Ma, K. Firouzi, **K. Brenner**, and B. Khuri-Yakub. "High bandwidth and low driving voltage CMUTs for airborne applications*," IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* 66, 11, 1777-1785 (2019).
12. **K. Brenner**, S. Ergun, K. Firouzi, M. Rasmussen, Q. Stedman, and B. Khuri-Yakub. "Advances in capacitive micromachined ultrasonic transducers," *Micromachines* 10, 152 (2019).
11. J. Jang, C. Chang, M. Rasmussen, **K. Brenner**, Q. Stedman, A. Ergun, and B. Khuri-Yakub. "Dual-mode capacitive micromachined transducer arrays for high intensity focused ultrasound and imaging," *The Journal of the Acoustical Society of America* 144, 1698 (2018).

10. R. Nashed, C. Pan, **K. Brenner**, and A. Naeemi. "Field emission from graphene sheets and its application in floating gate memories," *Semiconductor Science & Technology* 33, 125003 (2018).
9. R. Nashed, C. Pan, **K. Brenner**, and A. Naeemi. "Ultra-high mobility in dielectrically pinned CVD graphene," *IEEE Journal of the Electron Device Society* 4, 6, 466-472 (2016).
8. **K. Brenner**, T. Beck, and J. Meindl. "Enhancing hysteresis in graphene devices using dielectric screening," *IEEE Electron Device Letters* 33, 1195-1197 (2012).
7. S. Bryan, **K. Brenner**, R. Murali, and J. Meindl. "P-type electrical transport of chemically doped epitaxial graphene nanoribbons," *IEEE Electron Device Letters* 33, 866-868 (2012).
6. Y. Yang, **K. Brenner**, and R. Murali. "The influence of atmosphere on the electrical transport of graphene," *Carbon* 50, 1727-1733 (2012).
5. **K. Brenner**, Y. Yang, and R. Murali. "Edge doping of graphene sheets," *Carbon* 50, 637-645 (2012).
4. **K. Brenner** and R. Murali. "In situ doping of graphene by exfoliation in a nitrogen ambient," *Applied Physics Letters* 98, 113115 (2011).
3. **K. Brenner** and R. Murali. "Single step, complimentary doping of graphene," *Applied Physics Letters* 96, 063104 (2010).
2. R. Murali, **K. Brenner**, Y. Yang, T. Beck, and J. Meindl. "Resistivity of graphene nanoribbon interconnects," *IEEE Electron Device Letters* 30, 611-613 (2009).
1. R. Murali, Y. Yang, **K. Brenner**, T. Beck, and J. Meindl. "Breakdown current density of graphene nanoribbons," *Applied Physics Letters* 94, 243114 (2009).

Conference Proceedings

9. I. Datye, A. Daus, **K. Brenner**, R. Grady, and E. Pop, "Improving the performance of MoS_2 transistors using tensile strain," *Materials Research Society* (2019).
8. A. Daus, S. Vaziri, V. Chen, R. Grady, C. Bailey, **K. Brenner**, K. Schauble, and E. Pop, "Direct transfer of two-dimensional transition metal dichalcogenides with contacts for flexible electronics," *Materials Research Society* (2019).
7. L. Gu, Q. Stedman, C. Pai, M. Rasmussen, **K. Brenner**, B. Ma, A. Ergu, B. Khuri-Yakub, and J. Davila, "Multiphase GaN class-D resonant amplifier for high-intensity focused ultrasound," *IEEE Control and Modeling for Power Electronics* (2019).
6. A. Kahn, **K. Brenner**, K. Smithe, M. Mleczko, and E. Pop, "Large temperature coefficient of resistance in atomically thin 2D devices," 77th *IEEE Device Research Conference* (2019).
5. A. Daus, S. Vaziri, **K. Brenner**, A. Tang, R. Grady, and E. Pop, "Flexible field-effect transistors of PVT-grown MoS_2 fabricated by direct transfer," *77th IEEE Device Research Conference* (2019).
4. B. Ma, K. Firouzi, **K. Brenner**, and B. Khrui-Yaku, "High sensitivity and wide bandwidth airborne CMUTs with low driving voltage," *IEEE International Ultrasonics Symposium* (2019).
3. J. Jang, C. Chang, M. Rasmussen, A. Moini, **K. Brenner**, D. Stephens, O. Oralkan, and B. Khuri-Yakub. "Integration of a dual-mode catheter for ultrasound image guidance and HIFU ablation using a 2-D CMUT array," *IEEE International Ultrasonics Symposium*, (2017).
2. V. Kumar, R. Nashed, **K. Brenner**, R. Sandhu, and A. Naeemi. "System level analysis and benchmarking of graphene interconnects for low-power applications," *IEEE International Symposium on Electromagnetic Compatibility*, 192-197 (2014).
1. Y. Yang, **K. Brenner** and R. Murali. "System-level analysis of graphene Klein tunneling device," *IEEE International Conference on Nanotechnology 11th*, 1575-1579 (2011).

Patents

1. **K. Brenner** and R. Murali. "Single-step complimentary doping method of graphene." Serial No. 12/957,239 (2010).

Synergistic Activities

4. Developing STEM storylines (3-week lesson plans) for underrepresented K-12 districts in West Dallas. This work is through SMU's Caruth Institute of Engineering Education and makes use of internal research data.
3. Developing STEM summer camps projects for underrepresented 8th and 9th grade high school students from West Dallas. This work is through SMU's Caruth Institute of Engineering Education and makes use of internal research data.
2. Assisting local museums (Meadows, Kimbell, Perot) to apply Raman spectroscopy for artwork conservation.
1. Reviewing for various technical journals (recently Nature Electronics, IEEE Electron Devices, and Carbon) and funding agencies (recently NSF EPM and DOE BES).