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EDUCATION

Forschungszentrum Julich & RWTH Aachen , Germany	PhD in Physics/Bioelectronics <i>Magna cum laude</i>	2013 - 2017
Chalmers University of Technology Goteborg, Sweden & KULeuven , Leuven, Belgium;	MSc in Nanoelectronics, Erasmus Mundus Master of Nanoscience and Nanotechnology <i>Magna cum laude</i>	2011 - 2013
National Research University of Electronic Technology Moscow, Russia	MSc in Engineering and Nanotechnology <i>Summa cum laude</i> BSc in Engineering and Nanotechnology <i>Summa cum laude</i>	2010 - 2012 2006 - 2010

RESEARCH FOCUS

- Wearable and Implantable Bioelectronics
- Human-Machine Interfaces
- Electronic Tattoos
- Neurotechnology
- Nanotechnology
- 2D Materials
- Neural Interfaces
- Advanced Biosensors
- Biohybrids

ACADEMIC AND RESEARCH EXPERIENCE

- Assistant Professor** – The University of Massachusetts Amherst
Department of Biomedical Engineering
2023 –
- “2D Bioelectronics” Independent research lab
- Research Associate** – The University of Texas at Austin, Austin, TX, USA
Department of Electrical and Computer Engineering
2020 – 2023
- Research towards wearable and implantable electronic devices;
 - Obtaining research grants, establishing international collaborations, supervising research students;
 - Established human clinical trials for translational blood pressure (BP) monitoring with graphene tattoos;
- Postdoctoral Researcher** – The University of Texas at Austin, Austin, TX, USA
PI: Dr. Deji Akinwande
2018 – 2020
- Department of Electrical and Computer Engineering
- Developed active wearable e-tattoos and biosensors;
 - Pioneered PtSe₂ and PtTe₂ based electronic tattoos;
 - Established and managed a research laboratory (focus on wearable bioelectronics ~600 ft.²);
- Postdoctoral Researcher** – Forschungszentrum Julich, Germany
PI: Dr. Andreas Offenhäusser
2017 – 2018
- Institute of Bioelectronics
- Developed flexible neurotechnology devices based on graphene for the brain- and eye- electrophysiology;
 - Engineered various graphene-based biosensing platforms;
- PhD Researcher** – Forschungszentrum Julich, Germany
PI: Dr. Andreas Offenhäusser
2013 – 2017
- Institute of Bioelectronics
- PhD Dissertation:** “Graphene Devices for Extracellular Measurements”
- Introduced graphene FETs and MEAs as *in vitro* and *in vivo* cellular neurointerfacing tools;

Research Intern – IMEC, BelgiumPI: *Dr. Cedric Huyghebaert*

- Graphene fabrication, transfer, implementation, and characterization;

ACADEMIC HONORS

- 2024 - American Heart Association Career Development Award
- 2024 - mHealth Training Institute Fellow
- 2023 - Semi-finalist for MIT's 35 Innovators Under 35
- 2023 - MDPI Biosensors Travel Award
- 2023 - UT Austin Co-Op UT Best Research Paper Award
- 2017 - *Magna cum laude* defence of PhD degree at RWTH Aachen
- 2011 - European commission *scholarship A* Award for Erasmus Mundus Master Program of Nanoscience and Nanotechnology
- 2010 - Young investigator *research grant* “Y.M.N.I.K.” Moscow, Russia

CURRENT & PENDING GRANT SUPPORT

2023-2026	NSF:FET:Small	<u>\$600,000</u>
	• Title: <i>Hybrid Electrical, Ionic, and Biocompatible Artificial Synaptic Transistors</i> • Role: Co-PI • PI: J-A. Incorvia	
2024-2026	NSF CBET EAGER grant	<u>\$200,000</u>
	• Title: <i>Aptamer-Infused Janus Graphene Transistor as Sweat Biosensing Platform</i> • Role: Principal Investigator	
2024-2027	AHA Career Development Award	<u>\$231,000</u>
	• Title: <i>Multimodal Graphene Bioelectronic Interfaces For Imperceptible Diagnosis And Treatment Of Heart-Related Disorders</i> • Role: Principal Investigator	
Pending	NIH NIBIB R21 Trailblazer Award for New and Early Stage Investigators	<u>pending \$618,000</u>
	• Title: <i>Skin Morphed Intraepidermal Electronic Tattoos</i> • Role: Principal Investigator	
Pending	NIH NIAID R21	<u>pending \$400,000</u>
	• Title: <i>Eliminating Hepatitis C Via Early Stage Multitarget Rapid Point-Of-Care Transistor Biosensing</i> • Role: Principal Investigator	

PRIOR GRANT SUPPORT

2022–2024	NSF EAGER	<u>\$200,000</u>
	• Award #2222907 • Title: <i>EAGER: Pan-Variant Covid-19 Differentiated Biosensing Using Graphene Field-Effect Sensors</i> • Role: grant writing and project planning • PI: D. Akinwande	
2023-2024	ACS/IRG American Cancer Society Institutional Research Grant	<u>\$50,000</u>
	• Title: <i>Wearable Graphene Impedance Tattoo Tomography for Skin Cancer Detection</i> • Role: Co-PI • PI: E. Porter	
2022-2023	NIST Transfer of Graphene for Graphene-based Devices	<u>\$150,000</u>
	• Title: <i>URGENT: Ultrasonic Graphene Transfer</i> • Role: Grant writing and project planning • PI: A. Chamrathy, Lab91	
2020–2021	NSF RAPID	<u>50% of total \$150,000</u>
	• Award #2033846 • Title: <i>Dual COVID-19 and Influenza Virus Detection via Target Antibody-Functionalized Graphene Field-Effect Sensing</i>	

- Role: ~80% grant writing and project planning
 - PI: D. Akinwande; Co-PI: A. Ellington
- Fall 2020 UT-Austin ECE **seed grant** \$15,000
- Title: *Rapid detection of COVID-19 Virus via Target Antibody-Functionalized Graphene Field-Effect Sensing*
 - Role: Co-PI. Co-PI: Deji Akinwande
- 2016–2017 **FZ-Jülich grant for a master thesis support project** €10,000
- Role: Principal Investigator
- 2010–2012 **Young investigator research grant “Y.M.N.I.K.”** £400,000
- Role: Principal Investigator

PUBLICATIONS

(† *corresponding author*) (see www.kireevlab.com or [Google Scholar](https://scholar.google.com/) for up-to-date information)

- 1) H. Lee, Z. Johnson, S. Denton, N. Liu, D. Akinwande, E. Porter, and **D. Kireev**[†] “A non-invasive approach to skin cancer diagnosis via graphene electrical tattoos and electrical impedance tomography”. *Physiological Measurement* 2024 († *corresponding author*) <https://doi.org/10.1088/1361-6579/ad3d26>
- 2) **D. Kireev**^{*}, K. Sel^{*}, B. Ibrahim, N. Kumar, A. Akbari, R. Jafari, D. Akinwande “Continuous Cuff-less Monitoring of Arterial Blood Pressure Via Graphene Bioimpedance Tattoos” *Nature Nanotechnology* 2022 (* *co-first authorship*), 2022; [Link](#).
Ranked 1st in Nature Nanotechnology by Online Attention. [C&EN highlighted](#) the work as one of the breakthroughs of the 2022 Year Several (55+) media outlets have reported on this significant achievement: [Texas A&M Today](#) ; [UTexas News Release](#) ; [The Daily Texan](#); [KXAN News Station Live Coverage](#) ; [IEEE Spectrum](#) ; [New Scientist](#); [ACS C&EN](#) ; [Daily Beast](#) ; [Physics World](#) ; [Physics Org](#) ; [CNN](#); [Physics Today](#).
- 3) A. Savchenko, **D. Kireev**, R.T. Yin, I.R. Efimov, E. Molokanova. “Graphene-based cardiac sensors and actuators.” *Front. Bioeng. Biotechnol.* **11**, 1–17 (2023). <https://doi.org/10.3389/fbioe.2023.1168667>
- 4) S. Liu, D. Akinwande, **D. Kireev**, J.A.C. Incorvia. “Graphene-Based Artificial Dendrites for Bio-Inspired Learning in Spiking Neuromorphic Systems”. ArXiv, 1–19 (2023). <http://arxiv.org/abs/2310.02364>
- 5) S. Mohan, **D. Kireev**, S. Kutagulla, N. Ignacio, Y. Gu, H. Celio, X. Zhan, D. Akinwande, K.M. Liechti. “Direct Metal-Free Growth and Dry Separation of Bilayer Graphene on Sapphire: Implications for Electronic Applications.” *ACS Appl. Nano Mater.* **6**, 19018–19028 (2023). <https://doi.org/10.1021/acsnano.3c03533>
- 6) S.S. Han, S. Sattar, **D. Kireev**, J.-C. Shin, T.-S. Bae, H.I. Ryu, J. Cao, A.K. Shum, J.H. Kim, C.M. Canali, D. Akinwande, G.-H. Lee, H.-S. Chung, Y. Jung. “Reversible Transition of Semiconducting PtSe₂ and Metallic PtTe₂ for Scalable All-2D Edge-Contacted FETs.” *Nano Lett.* (2023) <https://doi.org/10.1021/acs.nanolett.3c03666>
- 7) Y. Luo, **et al.** “Technology Roadmap for Flexible Sensors” *ACS Nano* **17**, 5211-5295, 2023. <https://doi.org/10.1021/acsnano.2c12606>
- 8) Z. Lin^{*}, **D. Kireev**^{*}, N. Liu^{*}, S. Gupta, J. LaPaino, S. N. Obaid, Z. Chen, D. Akinwande, and I. R. Efimov. “Graphene Biointerface for Cardiac Arrhythmia Diagnosis and Treatment.” *Advanced Materials* 2212190, 2023 (* *co-first authorship*); <https://doi.org/10.1101/2022.06.28.497825>.
- 9) N. Kumar, D. Towers, S. Myers, C. Galvin, **D. Kireev**[†], A. Ellington, D. Akinwande “Graphene Field Effect Biosensor For Concurrent And Specific Detection Of SARS-CoV-2 And Influenza” 2023 († *corresponding author*); *ACS Nano* **17**, 18629–18640 (2023). <https://doi.org/10.1021/acsnano.3c07707>
- 10) **D. Kireev**^{*}, S. Liu^{*}, H. Jin, T. P. Xiao, C. H. Bennett, D. Akinwande, and J.-A. C. Incorvia “Metaplastic Low-Power Biocompatible Graphene Artificial Synaptic Transistors for Enhanced Accuracy Neuromorphic Computing”, *Nature Communication* **13**, 4386, 2022; (* *co-first authorship*); [Link](#).
Ranked 1st in Nature Communications by Online Attention. Highlighted by 14+ outlets: [Mirage news](#) ; [Tech Explore](#) ; [ScienMag](#) ; [Bioengineer](#); [Eureka Alert](#) ; [Science Daily](#) ; [AZO Materials](#) ; [Today Headline](#).
- 11) E. Szmuc, D.J.F. Walker, **D. Kireev**, D. Akinwande, D. R. Lovley, B. Kietz, A. Ellington, “Engineering *Geobacter Pili* to Produce Metal:Organic Filaments” *Biosens. Bioelectron.* **2022**, 114993, 2022.
- 12) N. Hong, **D. Kireev**, Q. Zhao, D. Chen, D. Akinwande, W. Li, “Roll-to-Roll Dry Transfer of Large-scale Graphene” *Advanced Materials*, **34**(3), 2106615, 2022; [Link](#).
- 13) †**D. Kireev**, J. Kampfe, A. Hall, D. Akinwande “Graphene Electronic Tattoos 2.0: Enhanced Performance, Breathable, Robust”, *npj 2D materials and applications*, **6**, 46, 2022; († *corresponding author*); [Link](#).

Highlighted by [AZO Nano](#)

- 14) N. Nekrasov, S. Jaric, **D. Kireev**, A.V. Emelianov, A. V. Orlov, I. Gadjanski, P. I Nikitin, D. Akinwande, I. Bobrinetskiy “Real-time detection of ochratoxin A in wine through insight of aptamer conformation in conjunction with graphene field-effect transistor,” *Biosensors and Bioelectronics* **200**, 113890, 2022; [Link](#).
- 15) M. Fomin, F. Pasadas, E. G. Marin, A. Medina-Rull, F. G. Ruiz, A. Godoy, I. Zadorozhnyi, G. Beltramo, F. Brings, S. Vitusevich, A.Offenhausser, **D. Kireev**[†] “ Graphene on Silicon Hybrid Field-Effect Transistors”, Under revision, *Advanced Electronic Materials*, ([†] corresponding author); *Adv. Electron. Mater.* 2023, 2201083. <https://doi.org/10.1002/aelm.202201083>
- 16) [†]**D. Kireev**, S. Ameri, A. Nederveld, J. Kampfe, H. Jang, N. Lu, D. Akinwande “Fabrication, Characterization and Applications of Graphene Electronic Tattoos” *Nature Protocols* **16**(5), 2395–2417, 2021; ([†] corresponding author); [Link](#).
- 17) [†]**D. Kireev**, E. Okogbue, J. RT, T.-J. Ko, Y. Jung, D. Akinwande “Multipurpose and Reusable Ultrathin Electronic Tattoos Based on PtSe2 and PtTe2” *ACS Nano* **15** (2), 2800–2811, 2021; ([†] corresponding author); [Link](#).
- 18) A. Savchenko, R. T Yin, **D. Kireev**, I. R Efimov, and E. Molokanova “Graphene-based scaffolds: Fundamentals and Applications for Cardiovascular Tissue Engineering”, *Front. Bioeng. Biotechnol.* **9**, 1-8, 2021; [Link](#).
- 19) [†]A. Svetlova, [†]**D. Kireev**, D. Mayer, A. Offenhäusser “Origins of leakage currents on electrolyte-gated graphene field-effect transistors” *ACS Applied Electronic Materials* **3** (12), 2021. ([†] co-corresponding author). [Link](#).
- 20) Y-B. Chung, **D. Kireev**, M. Kim, D. Akinwande, and S.-J. Kwon “Enhanced Heat Dissipation Performance of Chemical Doped Graphene for Flexible Devices” *Korean Phys. Soc.* **78**(1), 2021; [Link](#).
- 21) A. Svetlova, G. Beltramo, **D. Kireev**, A. Offenhäusser “Quartz crystal microbalance monitoring of large-area graphene anodization reveals layer fracturing” *MRS Advances*, 1-6, 2021; [Link](#).
- 22) O. Oshin, **D. Kireev**, H. Hlukhova, F. Idachaba, D. Akinwande, A. Atayero. “Graphene-Based Biosensor for Early Detection of Iron Deficiency” *Sensors* **20**, 3688, 2020; [Link](#).
- 23) N. Nekrasov, **D. Kireev**, N. Omerović, A. Emelianov, and I. Bobrinetskiy, “Photo-Induced Doping in a Graphene Field-Effect Transistor with Inkjet-Printed Organic Semiconducting Molecules” *Nanomaterials* **9**, 1753, 2020; [Link](#).
- 24) **D. Kireev** and D. Akinwande, “Wearable graphene sensors use ambient light to monitor health” *Nature* **576**, 220-221, 2019; [Link](#).
- 25) [†]**D. Kireev**, V. Rincón Montes, J. Stevanovic, K. Srikantharajah, A. Offenhäusser, A. “N3-MEA probes: Scooping Neuronal Networks” *Frontiers in neuroscience*, **13**, 320, 2019; ([†] corresponding author); [Link](#).
- 26) T. Hondrich, B. Lanyk, P. Shokoohimehr, **D. Kireev**, V. Maybeck, D. Mayer, A. Offenhausser, “MEA Recordings and Cell-Substrate Investigations with Plasmonic and Transparent, Tunable Holey Gold” *ACS Appl. Mater. Interfaces* **11** (50), 46451-46461, 2019; [Link](#).
- 27) X. Zhang, Q. Jing, S. Ao, G.F. Schneider, **D. Kireev**, Z. Zhang, W. Fu, “Ultrasensitive Field-Effect Biosensors Enabled by the Unique Electronic Properties of Graphene” *Small* **19**02820, 2019; [Link](#).
- 28) N. Nekrasov, **D. Kireev**, A. Emelianov, and I. Bobrinetskiy. “Graphene-Based Sensing Platform for On-Chip Ochratoxin A Detection” *Toxins* **11**, no. 10: 550, 2019; [Link](#).
- 29) [†]**D. Kireev**, A. Offenhäusser, “Graphene & two-dimensional devices for bioelectronics and neuroprosthetics” *2D materials* **5** (4), 042004, 2018; ([†] corresponding author); [Link](#).
- 30) A.V. Emelianov, **D. Kireev**, A. Offenhausser, N. Otero, P. Romero, I. Bobrinetskiy, “Thermoelectrically driven photocurrent generation in femtosecond laser patterned graphene junctions” *ACS photonics*, pp 3107-3115, 2018; [Link](#).
- 31) Y. Liang, M. Ernst, F. Brings, **D. Kireev**, V. Maybeck, A. Offenhäusser, D. Mayer, “High performance flexible organic electrochemical transistors for monitoring cardiac action potential” *Advanced Healthcare Materials* **18**00304, 2018; [Link](#).
- 32) A. Barannik, N. T. Cherpak, I. A. Protsenko, A. I. Gubin, **D. Kireev**, and S. Vitusevich. “Contactless exploration of graphene properties using millimeter wave response of WGM resonator” *Applied Physics Letters* **113**, no. 9, 094102, 2018; [Link](#).
- 33) **D. Kireev**, P. Shokoohimehr, M. Ernst, V. Montes, K. Srikantharajah, V. Maybeck, B. Wolfrum, A. Offenhäusser “Fabrication of ultrathin and flexible graphene-based devices for in vivo neuroprosthetics” *MRS Advances* **3**(29), 1621-1627, 2018; [Link](#).
- 34) **D. Kireev**, I. Zadorozhnyi, T. Qiu, D. Sarik, F. Brings, T. Wu, S. Seyock, V. Maybeck, M. Lottner, B. Blaschke, J. Garrido, X. Xie, S. Vitusevich, B. Wolfrum, A. Offenhausser, “Graphene transistors for in-vitro and ex-vivo recordings” *IEEE transactions on Nanotechnology* **16**, 140-147, 2017; [Link](#).

- 35) **D. Kireev**, S. Seyock, J. Lewen, V. Maybeck, B. Wolfrum, A. Offenhäusser, “Graphene multi electrode arrays as a versatile tool for extracellular recordings” *Adv. Healthcare Materials* **6**, 1601433, 2017; [Link](#).
- 36) **D. Kireev**, M. Brambach, S. Seyock, V. Maybeck, W. Fu, B. Wolfrum, A. Offenhäusser, “Graphene transistors for interfacing with cells: towards a deeper understanding of liquid gating and sensitivity” *Scientific Reports* **7**, 6658, 2017; [Link](#).
- 37) W. Fu, L. Feng, G. Panaitov, **D. Kireev**, D. Mayer, A. Offenhäusser, and H.-J. Krause, “Biosensing near the neutrality point of graphene” *Science Advances* **3**(10), 1701247, 2017; [Link](#).
- 38) **D. Kireev**, S. Seyock, M. Ernst, V. Maybeck, B. Wolfrum, A. Offenhäusser, “Versatile flexible graphene microelectrode arrays” *Biosensors* **7**, 1-9, 2017; [Link](#).
- 39) W. Fu, L. Feng, D. Mayer, G. Panaitov, **D. Kireev**, A. Offenhäusser, and H.-J. Krause, “Electrolyte-Gated Graphene Ambipolar Frequency Multipliers for Biochemical Sensing” *Nano Letters* **16**(4), 2295, 2016; [Link](#).
- 40) V. Emelianov, **D. Kireev**, D. D. Levin, I. I. Bobrinetskiy, “The effect of ultraviolet light on structural properties of exfoliated and CVD graphene” *Applied Physics Letters* **109**, 173101, 2016; [Link](#).
- 41) **D. Kireev**, D. Sarik, T. Wu, X. Xie, B. Wolfrum, and A. Offenhäusser, “High throughput transfer technique: Save your graphene” *Carbon* **107**, 319-324, 2016; [Link](#).
- 42) Y. Nam, J. Sun, N. Lindvall, S. J. Yang, **D. Kireev**, C. R. Park, Y. W. Park, A. Yurgens, “Quantum Hall effect in graphene decorated with disordered multilayer patches” *Applied Physics Letters* **103**, 233110, 2013; [Link](#).

SELECT ORAL and INVITED TALKS

- 1) **D. Kireev** “Atomically Thin Bioelectronics: from Biosensors to Wearable E-Tattoos” †Invited talk, NYU, 2024.
- 2) **D. Kireev** “2D Materials for Bioelectronic and Neuromorphic Applications” †Invited talk, UMass Amherst Materials Colloquium, 2024.
- 3) **D. Kireev** “2D Materials for Bioelectronics”. †Invited talk, IEEE NoVa 2024
- 4) **D. Kireev**, D. Akinwande “Biosensors and Wearable Tattoo Sensors Based on 2D Atomic Materials” †Invited talk, MRS Fall 2023.
- 5) **D. Kireev** “Atomically Thin Boundary Between Wearable and Implantable Bioelectronic Interfaces” MRS Fall 2023.
- 6) **D. Kireev** “Atomically Thin Bioelectronics” †Invited talk, UMass Amherst BME, 2023.
- 7) **D. Kireev** “Tissue-Like Neuroelectronics” †Invited talk, EPFL Neuro-X, 2023.
- 8) **D. Kireev** “Atomically Thin Bioelectronics” †Invited talk, Dartmouth Engineering, 2023.
- 9) **D. Kireev** “Atomically Thin Bioelectronics” †Invited talk, Drexel MSE, 2023.
- 10) **D. Kireev** “Atomically Thin Bioelectronics” †Invited talk, McMaster Engineering, 2023.
- 11) **D. Kireev** “Tissue-Like Neuroelectronics” †Invited talk, Brown Neuroengineering, 2023.
- 12) **D. Kireev** “Atomically Thin Bioelectronics” †Invited talk, UC Riverside Bioengineering, 2023.
- 13) **D. Kireev** “Atomically Thin Bioelectronics” †Invited talk, University of Edinburgh, 2023.
- 14) **D. Kireev** “Atomically Thin Bioelectronics” †Invited talk, Stevens Institute of Technology, 2023.
- 15) **D. Kireev** “Atomically Thin Bioelectronics” †Invited talk, University of Maryland College Park, 2023.
- 16) **D. Kireev**, D. Akinwande “Two-dimensional Skintronics” †Invited talk, American Vacuum Society 2022.
- 17) **D. Kireev** “Atomically Thin Bioelectronics” †Invited talk, Stanford, 2022.
- 18) **D. Kireev** “Atomically Thin Bioelectronics” †Invited talk, UC Berkeley, 2022.
- 19) **D. Kireev**, D. Akinwande “Epidermal Skintronics with Two-Dimensional Materials” Asilomar Bioelectronics 2022.
- 20) **D. Kireev**, D. Akinwande “Two-dimensional Skintronics” †Invited talk, Gordon Research Conference and Seminar - Two Dimensional Electronics Beyond Graphene 2022.
- 21) **D. Kireev**, Neelotpala Kumar, Nandu Koripally, D. Akinwande “Two-dimensional Skintronics” †Invited talk, MRS Spring 2022 meeting.
- 22) **D. Kireev**, “Conventional and unconventional biosensing with 2D materials ” †Invited talk, Workshop 2D Materials for Biomedical Applications. Online talk. 2022
- 23) **D. Kireev** et al., “Ultrathin Electronic Tattoos Based on PtSe₂ and PtTe₂” MRS Spring 2021 meeting.
- 24) **D. Kireev** Postdoc Quest Series “Towards Two-Dimensional Humans” †Invited talk, IEEE graduate student chapter. Online talk. [Link](#). 2021.
- 25) **D. Kireev** “Биоэлектроника на основе двумерных материалов” †Invited talk, PhysTech Lecture Series 2021.
- 26) **D. Kireev** “Atomically Thin Wearable e-Tattoo Biosensing” †Invited talk, Sensor RIG. Online talk. [Link](#). 2021.

- 27) **D. Kireev**, D. Akinwande, “Graphene based health monitoring” *MRS Fall 2019 meeting*, Boston, USA.
- 28) **D. Kireev**, B. Wolfrum, A. Offenhäusser, “Graphene devices for bioelectronics” *BioEL 2018*, Austria.
- 29) **D. Kireev** “Graphene Bioelectronics” †**Invited talk**, Aachen Graphene & 2D Materials Center, Germany 2017.
- 30) **D. Kireev**, P. Shokohimehr, V. Maybeck, B. Wolfrum, A. Offenhäusser, “Flexible and Implantable Graphene Based Neural Probes” *MRS Fall 2017 meeting* Boston, USA.
- 31) **D. Kireev**, Q. Tianyu, D. Sarik, S. Seyock., T. Wu, V. Maybeck, B. Blaschke, M. Lottner, J. Garrido, X. Xie, B. Wolfrum, A. Offenhäusser, “Flexible Graphene Devices for Neuronal Measurements and Interfacing with Brain” *MRS Fall 2016 meeting*, Boston, USA.
- 32) †**D. Kireev**, J. Schnitker, V. Maybeck, D. Sarik, S. Seyock, B. Wolfrum, A. Offenhäusser, “Large Scale Fabrication of Graphene Based Devices for Bioelectronics” †**Invited talk**, *Sino-German Workshop*, Shanghai, 2015.
- 33) **D. Kireev**, S. Seyock, J. Schnitker, V. Maybeck, B. Wolfrum, A. Offenhäusser, “Wafer-scale fabrication of graphene-based field effect transistor arrays for extracellular measurements” *EnFI-2014*, Aachen, Germany.

CONFERENCE PROCEEDINGS

- 1) H. Lee, S. Denton, **D. Kireev**, D. Akinwande, Z. Johnson, E. Porter “Wearable Graphene Tattoo Impedance Tomography for Skin Lesion Differentiation.” *IEEE Biomedical Circuits and Systems Conference (BioCAS)*, 2023.
- 2) N. Nekrasov, A. Emelianov, **D. Kireev**, N. Omerović, and I. Bobrinetskiy, “Photosensitive junctions based on UV-modified graphene and inkjet-printed organic molecules,” *Organic Electronics and Photonics: Fundamentals and Devices II* SPIE Photonics Europe, 2020;
- 3) O. Oshin, **D. Kireev**, D. Akinwande, E. Adetiba, F. Idachaba, A. Atayero. “Advancing PoC Devices for Early Disease Detection using Graphene-based Sensors,” *Journal of Physics: Conference Series* 1378 (3), 032031;
- 4) K. Sel, **D. Kireev**, A. Brown, B. Ibrahim, D. Akinwande, R. Jafari, “Electrical Characterization of Graphene-based e-Tattoos for Bio-Impedance-based Physiological Sensing,” *IEEE BioCAS Conference* 2019, Nara, Japan;
- 5) I. Protsenko, A. Barannik, N. Cherpak, A. Gubin, **D. Kireev**, S. Vitusevich. “WGM Resonators for Conductivity Measurements of Graphene Films,” *49th European Microwave Conference* 2019;
- 6) I. Bobrinetskiy, A. Emelianov, **D. Kireev**, N. Otero, P. Romero “Photosensitive in-plane junction in graphene field effect transistor modified under femtoseconds laser irradiation,” *Nanophotonics* VII 2018;
- 7) A. Emelianov, **D. Kireev**, N. Otero, P. Romero, I. Bobrinetskiy “Photoresponse in graphene field effect transistor under ultra-short pulsed laser irradiation,” *Micro-and Nano-Electronics* 2016.

BOOK CHAPTERS

- 1) **D. Kireev** and D. Akinwande, “*Electronic Tattoos*” at Encyclopedia of Sensors and Biosensors; *Volume 4*, 2023, Pages 103-114; 2022. [Link](#).
- 2) **D. Kireev** and A. Offenhäusser, “Graphene as an Organic and Bioelectronic Material,” *Organic Bioelectronics for Life Science and Healthcare* 56 (2019) 153-184. [Link](#).
- 3) A. Offenhäusser, S. Weidlich, **D. Kireev**, K. Srikantharajah, V. Rincón Montes “*Microelectrode devices for in vitro and in vivo recordings of cellular activity*,” 49th IFF Spring school book chapter.

PATENTS

- 1) **D. Kireev**, D. Akinwande, N. Kumar, D. Towers “Rapid, multi-targeted, modular virus sensing platform based on graphene field-effect sensing” 2021 patent disclosure.
- 2) **D. Kireev**, D. Sarik, B. Wolfrum, A. Offenhäusser “Method for transferring graphene pieces onto a substrate,” 2016 PCT/DE 102015016143.1, & WO2017097279A1 & US10593762B22016.

INDUSTRY CONSULTING

- 1) Lab-91 – Anand Chamrathy – Research consulting on industrial grade graphene transfer;
- 2) GrapheneDx and Peregrine Biosense – Research consulting on nanomaterials-based biosensing
- 3) Lion Alternative Energy PLC – Kostas Liapis - external consulting.

FEATURES & PRESS RELEASES

- 1) “Graphene Health Monitor” – Special Feature at [NSF Discovery Files](#).
- 2) “Sweat-analyzing temporary tattoo research funded in NSF grant” – [UMass Amherst Press Release](#).
- 3) “Computer chips that think like brains” – [Spectrum News Video Feature](#).

- 4) “Temporary “tattoos” that measure blood pressure” – [NIH NIBIB Feature Release](#).
- 5) “Blood pressure project could hold keys to better health” – [Spectrum News Video Feature](#).
- 6) “Graphene and Beyond: The Wonder Materials That Could Replace Silicon in Future Tech” – [The Wall Street Journal](#).
- 7) “Graphene tattoos that you can DIY” – Springer Nature “[Behind the Paper](#)”.
- 8) “Hi-tech dual-sensor to detect COVID-19 and flu in development” – [ABC News](#).
- 9) “UT researchers developing sensor that can test for coronavirus, flu simultaneously” – [KVUE News](#).
- 10) “COVID-19 Or The Flu? A Sensor In The Works Could Tell The Difference. Why It Matters.” [KUT Radio Interview Part](#).
- 11) “Lauschangriff auf Nervenzellen” – [FZJ News](#) (in German). [Audio Part](#) (in English).
- 12) “Графен в медицине” – [Postnauka](#) (in Russian).
- 13) “A Graphene ‘Camera’ Images the Activity of Living Heart Cells” – Interview for [WIRED](#).
- 14) “New Pen-and-Ink Method Draws Health Sensors Directly on Skin” – Interview for [Scientific American](#).

TEACHING EXPERIENCE

Fall 2023	Instructor	“Frontiers of <i>Bioelectronics</i> ” lecture course, UMass Amherst, BME, elective
Fall 2022	Guest Lecturer	“ <i>Bioelectronics with 2D materials</i> ”, BME @ UT Austin
Spring 2022	Guest Lecturer	“ <i>Flexible 2D Electronics</i> ”, “ <i>Graphene Tattoos</i> ” ECE @ UT Austin
Fall 2020	Guest Lecturer	“ <i>Graphene Electronic Tattoos</i> ”, “ <i>Graphene Synthesis</i> ” ECE @ UT Austin
Fall 2019	Guest Lecturer	“ <i>Graphene Synthesis</i> ”, “ <i>Flexible 2D electronics</i> ”, “ <i>Graphene Wearable Sensors</i> ”, ECE @ UT Austin
Spring 2019	Guest Lecturer	“ <i>Graphene Wearable Sensors</i> ”, UT Austin
Spring 2017	Invited Lecturer	“ <i>Graphene Devices for Neuroelectroprosthesis and Overview of Neuroelectronics Techniques</i> ”, Neuroengineering, TUM, Germany

ACADEMIC SERVICE

- 2022-2023 NSF Reviewer
- 2020-2023 UT Austin VPR Research & Creative Grants Reviewer
- 2020-2023 Undergraduate Research Fellowship Reviewer at UT Austin
- Organized Fall MRS 2023 Symposium SB.11 “*Wearable and Implantable Neuro- and Bio-Electronics with 2D Materials*.”
- Session Chair for AVS-68 Conference.
- Session Chair for Asilomar Bioelectronics 2022 Conference.
- Session Chair for MRS Spring 2022 Symposium MF.03 “*Flexible/Stretchable Electronics I*”.
- Organized Fall MRS 2021 Symposium SB.06 “*Graphene and Related 2D Materials for Bioelectronics and Healthcare*”. [Link](#)
- Session Chair for Fall MRS 2021 Symposium SB.06 “*Graphene and Related 2D Materials for Bioelectronics and Healthcare*”.
- Session Chair for Fall MRS 2021 Symposium EQ.20 “*Beyond Graphene 2D Materials—Synthesis, Properties and Device Applications*”. [Link](#)
- JoVe Methods Collection Guest Editor. [Link](#)
- Topic Editor for MDPI *Biosensors*. [Link](#)
- Ad hoc reviewer for ACS Nano, ACS AMI, Advanced Materials Family, Science Advances, MDPI Journals family, Nanoscale Research Letters, Frontiers in Neuroscience. [Web Of Science Profile](#)
- Review Editor at the Frontiers in Neuroscience, Neural Technology. [Link](#)
- Member of the *Material Research Society*, *Society for Neuroscience*, *American Chemical Society*, and the *IEEE*.

DEPARTMENT AND UNIVERSITY SERVICE

- 2023 – BME Department Undergraduate Committee
- 2023 – BME Department Lecturer Search Committee
- 2023 – University wide MSE IDG Committee

OUTREACH AND LEADERSHIP

- IEEE Graduate *Student Chapter's* Postdoctoral Member (2018–2022). [Website](#). [YouTube Channel](#)
- RIG Sensors Executive Postdoctoral Committee Member (2020–2023). [Website](#). [YouTube Channel](#)
- Research Experience for Undergraduates (REU) mentor. (2021–present).
- Research Experience for Teachers (RET) mentor.
- Mentor (2020–2022) at [The Science Mentors](#) program.

MENTORING AND SUPERVISION

<i>Name</i>	<i>Type and Institute</i>	<i>Currently</i>
	β – co-supervision $^{[x]}$ – results in peer-reviewed publication	
Prashant Narute	Postdoctoral Fellow @ UMass Amherst	UMass Amherst
Alexandra Katsoulakis	UG @ UMass Amherst	UMass Amherst
Alexa Velazquez	UG @ UMass Amherst	UMass Amherst
Om Tank	UG @ UMass Amherst	UMass Amherst
Max Mchugh	UG @ UMass Amherst	UMass Amherst
Monil Bhavsar	UG @ UMass Amherst	UMass Amherst
Nathan Chang	UG @ UMass Amherst	UMass Amherst
Sean Morris	UG @ UMass Amherst	UMass Amherst
Siddh Merchant	UG @ UMass Amherst	UMass Amherst
Art McLaughlin	UG @ UMass Amherst	UMass Amherst
Mary Esenther	UG @ UMass Amherst	UMass Amherst
Favour Nakyazze	UG @ UMass Amherst	UMass Amherst
Alena Sluzhbina	MSc @ Virtually	---
Ivan Prinko	MSc @ Virtually	Kyiv Academic University
Ning Liu $^{[x]}$	PhD β @ UT Austin	PhD Student @ UT Austin
Neelotpala Kumar $^{[x]}$	PhD β @ UT Austin	PhD Student @ UT Austin
TJ Spillers	RET @ UT Austin	School Teacher, Round Rock ISD
Melinda Wright	RET @ UT Austin	School Teacher, Killeen ISD
Jayanth RT $^{[x]}$	MSc Thesis β @ UT Austin	PhD Student at UT Austin, Neuroscience
Zane Renee Johnson	Undergraduate @ UT Austin	Undergraduate @ UT Austin
Isabella Maya Goel	Undergraduate @ UT Austin	Undergraduate @ UT Austin
Sophie M Czelusta	Undergraduate @ UT Austin	Undergraduate @ UT Austin
Langyan Zhou	MSc Thesis @ UT Austin	Product Engineer at Texas Instruments
Justin Ko	MSc Thesis @ UT Austin	MSc Student @ UT Austin
Damilola Oshin $^{[x]}$	Visiting PhD β @ UT Austin	Lecturer at Covenant University
Alena Nederveld/Hall $^{[x]}$	Undergraduate @ UT Austin	PhD Student @ UT Austin
Amy Quartaro	Undergraduate @ UT Austin	PhD at Virginia Tech and NASA
Keyon H Ahmadi	Undergraduate @ UT Austin	Consulting Analyst at Qvest.us
Jameson Kampfe $^{[x]}$	Undergraduate @ UT Austin	MSc Student @ UT Austin
Jared McGee	Undergraduate @ UT Austin	PhD Student @ UT Austin
Nandu Koripally $^{[x]}$	Undergraduate @ UT Austin	PhD Student @ UCSD
Maya Borowicz	REU @ UT Austin	Undergraduate at Rice University
Jelena Stevanovic $^{[x]}$	PhD β @ FZ-Jülich	PhD Student @ FZ-Jülich
Viviana Rincón Montes $^{[x]}$	PhD β @ FZ-Jülich	Postdoctoral Research Associate at FZ-Jülich
Kagithiri Srikantharajah $^{[x]}$	PhD β @ FZ-Jülich	Scientific Coordinator at FZ-Jülich
Anastasia Svetlova $^{[x]}$	PhD β @ FZ-Jülich	Postdoctoral Researcher at USC, USA
Mykola Fomin $^{[x]}$	MSc Thesis @ FZ-Jülich	PhD Student at University of Osnabrück
Dario Sarik $^{[x]}$	MSc Thesis @ FZ-Jülich	Senior Data Scientist, Frassnapf Holding
Pegah Shokoohimehr $^{[x]}$	MSc Thesis @ FZ-Jülich	Process Engineer, Applied Materials

Matthis Ernst ^[x]	MSc Thesis @ FZ-Jülich	Senior Consultant at Dr. Safaric Consulting
Max Brambach ^[x]	BSc Thesis @ FZ-Jülich	PhD Student at University of Zurich
Jaqueline Lange	BSc Thesis ^β @ FZ-Jülich	---