

Publications

Journal Articles

- [1] Angsagan Abdigazy, Mohammed Arfan, June Shao, Mohammad Shafiqul Islam, Md Farhad Hassan, and **Yasser Khan**. 3d gas mapping in the gut with ai-enabled ingestible and wearable electronics. **Cell Reports Physical Sciences**, 2024.
- [2] Angsagan Abdigazy, Mohammed Arfan, Gianluca Lazzi, Constantine Sideris, Alex Abramson, and **Yasser Khan**. End-to-end design of ingestible electronics. **Nature Electronics**, pages 1–17, 2024. doi: 10.1038/s41928-024-01122-2. URL <http://dx.doi.org/10.1038/s41928-024-01122-2>.
- [3] Peter H Charlton, John Allen, Raquel Bailón, Stephanie Baker, Joachim A Behar, Fei Chen, Gari D Clifford, David A Clifton, Harry J Davies, Cheng Ding, and others. The 2023 wearable photoplethysmography roadmap. **Physiological measurement**, 44(11):111001, 2023.
- [4] **Yasser Khan**, Donggeon Han, Adrien Pierre, Jonathan Ting, Xingchun Wang, Claire M Lochner, Gianluca Bovo, Nir Yaacobi-Gross, Chris Newsome, Richard Wilson, and Ana C Arias. A flexible organic reflectance oximeter array. **Proceedings of the National Academy of Sciences**, 115(47):E11015–E11024, 2018. doi: 10.1073/pnas.1813053115. URL <http://dx.doi.org/10.1073/pnas.1813053115>. **Media coverage:** [Physics World](#), [UC Berkeley News Center](#), [KCBS Radio](#), [Innovators Magazine](#), [The Engineer \(UK\)](#), [Medgadget](#), [ScienceDaily](#), and many more.
- [5] **Yasser Khan**, Mohit Garg, Qiong Gui, Mark Schadt, Abhinav Gaikwad, Donggeon Han, Natasha AD Yamamoto, Paul Hart, Robert Welte, William Wilson, Steve Czarnecki, Mark Poliks, Zhanpeng Jin, Kanad Ghose, Frank Egitto, James Turner, and Ana C Arias. Flexible hybrid electronics: Direct interfacing of soft and hard electronics for wearable health monitoring. **Advanced Functional Materials**, 26(47):8764–8775, 2016. doi: 10.1002/adfm.201603763. URL <http://dx.doi.org/10.1002/adfm.201603763>.
- [6] Claire M Lochner*, **Yasser Khan***, Adrien Pierre*, and Ana C Arias. All-organic optoelectronic sensor for pulse oximetry. **Nature communications**, 5:5745, 2014. doi: 10.1038/ncomms6745. URL <http://dx.doi.org/10.1038/ncomms6745>. *Equal contribution. **Media coverage:** [UC Berkeley Grad News](#), [NSF Science 360 News](#), [UC Berkeley News Center](#), [Phys.Org](#), [ScienceDaily](#), [MSN News](#), [Yahoo News](#), and many more.
- [7] **Yasser Khan***, Felipe J Pavinatto*, Monica C Lin, Amy Liao, Sarah L Swisher, Kaylee Mann, Vivek Subramanian, Michel M Maharbiz, and Ana C Arias. Inkjet-printed flexible gold electrode arrays for bioelectronic interfaces. **Advanced Functional Materials**, 26(7):1004–1013, 2016. doi: 10.1002/adfm.201503316. URL <http://dx.doi.org/10.1002/adfm.201503316>. **Cover article.**
- [8] Sarah L Swisher, Monica C Lin, Amy Liao, Elisabeth J Leeflang, **Yasser Khan**, Felipe J Pavinatto, Kaylee Mann, Agne Naujokas, David Young, Shuvo Roy, Michael R Harrison, Ana C Arias, Vivek Subramanian, and Michel M Maharbiz. Impedance sensing device enables early detection of pressure ulcers in vivo. **Nature communications**, 6:6575, 2015. doi: 10.1038/ncomms7575. URL <http://dx.doi.org/10.1038/ncomms7575>. **Media coverage:** [BBC News](#), [UC Berkeley News Center](#), [Futurity](#), [NSF News](#), [ACM Communications](#), and many more.
- [9] **Yasser Khan**, Aminy E Ostfeld, Claire M Lochner, Adrien Pierre, and Ana C Arias. Monitoring of vital signs with flexible and wearable medical devices. **Advanced Materials**, 28(22):4373–4395, 2016. doi: 10.1002/adma.201504366. URL <http://dx.doi.org/10.1002/adma.201504366>.

- [10] **Yasser Khan**, Hossain Mohammad Fahad, Sifat Muin, Hongquan Li, Ray Chang, Karthik Gopalan, Syed Tariq Reza, and Manu Prakash. A low-cost, helmet-based, non-invasive ventilator for covid-19. 2020. URL <https://arxiv.org/abs/2005.11008>.
- [11] **Yasser Khan**, Donggeon Han, Jonathan Ting, Maruf Ahmed, Ramune Nagisetty, and Ana C. Arias. Organic multi-channel optoelectronic sensors for wearable health monitoring. **IEEE Access**, 2019. doi: 10.1109/ACCESS.2019.2939798. URL <http://dx.doi.org/10.1109/ACCESS.2019.2939798>.
- [12] Donggeon Han, **Yasser Khan**, Jonathan Ting, Simon M King, Nir Yaacobi-Gross, Martin J Humphries, Christopher J Newsome, and Ana C Arias. Flexible blade-coated multicolor polymer light-emitting diodes for optoelectronic sensors. **Advanced Materials**, 29(22):1606206, 2017. doi: 10.1002/adma.201606206. URL <http://dx.doi.org/10.1002/adma.201606206>.
- [13] Xiaodong Wu, **Yasser Khan**, Jonathan Ting, Juan Zhu, Seiya Ono, Xinxing Zhang, Shixuan Du, James W. Evans, Canhui Lu, and Ana C. Arias. Large-area fabrication of high-performance flexible and wearable pressure sensors. **Advanced Electronic Materials**, n/a(n/a):1901310, 2020. doi: 10.1002/aelm.201901310. URL <http://dx.doi.org/10.1002/aelm.201901310>.
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- [15] Donggeon Han, **Yasser Khan**, Jonathan Ting, Juan Zhu, Craig Combe, Andrew Wadsworth, Iain McCulloch, and Ana C. Arias. Pulse oximetry using organic optoelectronics under ambient light. **Advanced Materials Technologies**, n/a(n/a):1901122, 2020. doi: 10.1002/admt.201901122. URL <http://dx.doi.org/10.1002/admt.201901122>.
- [16] Donggeon Han, **Yasser Khan**, Karthik Gopalan, Adrien Pierre, and Ana C Arias. Emission area patterning of organic light-emitting diodes (oleds) via printed dielectrics. **Advanced Functional Materials**, 28(37): 1802986, 2018. doi: 10.1002/adfm.201802986. URL <http://dx.doi.org/10.1002/adfm.201802986>.
- [17] Varun Soman, **Yasser Khan**, Madina Zabran, Mark Schadt, Paul Hart, Michael Shay, Frank Egitto, Konstantinos Papathomas, Natasha AD Yamamoto, Donggeon Han, Ana C Arias, Kanad Ghose, Mark D Poliks, and James N Turner. Reliability challenges in fabrication of flexible hybrid electronics for human performance monitors: A system level study. **IEEE Transactions on Components, Packaging and Manufacturing Technology**, 2019. doi: 10.1109/TCPMT.2019.2919866. URL <http://dx.doi.org/10.1109/TCPMT.2019.2919866>.
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- [21] **Yasser Khan**, Hisham Al-Falih, Yaping Zhang, Tien Khee Ng, and Boon S Ooi. Two-step controllable electrochemical etching of tungsten scanning probe microscopy tips. **Review of Scientific Instruments**, 83(6):063708, 2012. doi: 10.1063/1.4730045. URL <http://dx.doi.org/10.1063/1.4730045>.
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- [23] Ali Moin, Andy Zhou, Abbas Rahimi, Alisha Menon, Simone Benatti, George Alexandrov, Senam Tamakloe, Jonathan Ting, Natasha Yamamoto, **Yasser Khan**, Fred Burghardt, Luca Benini, Ana C. Arias, and Jan M. Rabaey. A wearable biosensing system with in-sensor adaptive machine learning for hand gesture recognition. **Nature Electronics**, n/a(n/a), 2020. doi: 10.1038/s41928-020-00510-8. URL <http://dx.doi.org/10.1038/s41928-020-00510-8>.
- [24] Alla M. Zamarayeva, Natasha A. D. Yamamoto, Anju Toor, Margaret E. Payne, Caleb Woods, Veronika I. Pister, **Yasser Khan**, James W. Evans, and Ana Claudia Arias. Optimization of printed sensors to monitor sodium, ammonium, and lactate in sweat. **APL Materials**, 8(10):100905, 2020. doi: 10.1063/5.0014836. URL <http://dx.doi.org/10.1063/5.0014836>.
- [25] Sara Rachel Arussy Ruth, Vivian Rachel Feig, Min-gu Kim, **Yasser Khan**, Jason Khoi Phong, and Zhenan Bao. Flexible fringe effect capacitive sensors with simultaneous high-performance contact and non-contact sensing capabilities. **Small Structures**, n/a(n/a):2000079, 2020. doi: 10.1002/sstr.202000079. URL <http://dx.doi.org/10.1002/sstr.202000079>.
- [26] Sara RA Ruth, Min-gu Kim, Hiroki Oda, Zhen Wang, **Yasser Khan**, James Chang, Paige M Fox, and Zhenan Bao. Post-surgical wireless monitoring of arterial health progression. **IScience**, 24(9):103079, 2021. doi: 10.1016/j.isci.2021.103079. URL <http://dx.doi.org/10.1016/j.isci.2021.103079>.
- [27] Megan Chesnut, Sahar Harati, Pablo Paredes, **Yasser Khan**, Amir Foudeh, Jayoung Kim, Zhenan Bao, and Leanne M. Williams. Stress markers for mental states and biotypes of depression and anxiety: A scoping review and preliminary illustrative analysis. **Chronic Stress**, 5(n/a), 2021. doi: 10.1177/24705470211000338. URL <http://dx.doi.org/10.1177/24705470211000338>.
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- [29] **Yasser Khan** and Zhenan Bao. A soft-electronic sensor network tracks neuromotor development in infants. **Proceedings of the National Academy of Sciences of the United States of America**, 118(46):e2116943118, 2021. doi: 10.1073/pnas.2116943118. URL <http://dx.doi.org/10.1073/pnas.2116943118>.
- [30] Alex Abramson, Carmel Chan, **Yasser Khan**, Alana Mermin-Bunnell, Naoji Matsuhisa, Robyn Fong, Rohan Shad, William Hiesinger, Parag Mallick, Sanjiv Sam Gambhir, and Zhenan Bao. A flexible electronic strain sensor for the real-time monitoring of tumor progression. **Science Advances**, 2022. doi: 10.1126/sciadv.abn6550. URL <http://dx.doi.org/10.1126/sciadv.abn6550>. Media coverage: [USC News](#), [Stanford News](#), [Georgia Tech News](#), and many more.

- [1] Felix Munoz, Mohammad Shafiqul Islam, Helmut Stark, Ted Le, Krishna S Nayak, and **Yasser Khan**. Flexible receiver coil using direct-3d-write technology at 0.55t. In *International Society for Magnetic Resonance in Medicine Meeting, Singapore*. ISMRM, 2024.
- [2] Mohammad Shafiqul Islam, Brince Kunnel, Md Farhad Hassan, Angsagan Abdigazy, and **Yasser Khan**. Fully-printed micro-oect patch for real-time sweat multi-analyte detection. In *MRS Spring Meeting, San Francisco, CA, USA*. MRS, 2023.
- [3] Felix Munoz, Krishna S Nayak, and **Yasser Khan**. Evaluation of a wearable bluetooth sensor in low-field mri. In *International Society for Magnetic Resonance in Medicine Meeting, Toronto, Canada*. ISMRM, 2023.
- [4] Md Farhad Hassan, Zijie Li, Mohammad Shafiqul Islam, Kathryne Keenan, Cevina Manzano, **Yasser Khan**, and Sifat Muin. A robust printed strain sensor for large-area structural health monitoring. In *2023 IEEE International Flexible Electronics Technology Conference (IFETC)*, pages 1–3. IEEE, 2023.
- [5] **Yasser Khan**, Donggeon Han, Adrien Pierre, Jonathan Ting, Xingchun Wang, Claire M. Lochner, and Ana C. Arias. System design for flexible all-organic reflectance oximeter. In *MRS Spring Meeting, Phoenix, AZ, USA*, 2018.
- [6] Donggeon Han, **Yasser Khan**, Karthik Gopalan, and Ana C. Arias. Emission area patterning of blade-coated organic light-emitting diodes (oleds) via printed dielectrics. In *MRS Spring Meeting, Phoenix, AZ, USA*, 2018.
- [7] Ali Moin, Andy Zhou, Abbas Rahimi, Simone Benatti, Alisha Menon, Senam Tamakloe, Jonathan Ting, Natasha Yamamoto, **Yasser Khan**, Fred Burghardt, and others. An emg gesture recognition system with flexible high-density sensors and brain-inspired high-dimensional classifier. In *Circuits and Systems (ISCAS), 2018 IEEE International Symposium on*, pages 1–5. IEEE, 2018. doi: 10.1109/ISCAS.2018.8351613. URL <http://dx.doi.org/10.1109/ISCAS.2018.8351613>.
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- [11] **Yasser Khan**, Claire M Lochner, Adrien Pierre, and Ana Claudia Arias. System design for organic pulse oximeter. In *Advances in Sensors and Interfaces (IWASI), 2015 6th IEEE International Workshop on*, pages 83–86. IEEE, 2015. doi: 10.1109/IWASI.2015.7184975. URL <http://dx.doi.org/10.1109/IWASI.2015.7184975>.
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Poster Presentations

- [1] Md Farhad Hassan, Samiha Tasnim, Leikhang Xiong, Munia Ferdoushi, Mohammad Arfan, and **Yasser Khan**. ML driven optical monitoring of stress through electrodermal activity. In *Soft Mechatronics and Wearable Systems, SPIE, Long Beach, California, USA*, 2024.
- [2] **Yasser Khan**, Boris Murmann, and Zhenan Bao. MentaId: A skin-like sensor system for decoding mental health. In *2020 eWEAR Annual Meeting, Stanford, CA, USA*, February 2020.
- [3] Jonathan Ting*, Natasha Yamamoto*, **Yasser Khan***, Abhinav Gaikwad, and Ana Claudia Arias. Fully screen-printed nio thermistor arrays. In *Flexible Electronics Conference and Exhibition - 2018 FLEX, Monterey, CA, USA*, February 2018. **Best Poster Award**.
- [4] **Yasser Khan**, Felipe Pavinatto, and Ana Claudia Arias. Flexible printed circuit board for wearable physiological monitoring. In *MRS Spring Meeting, San Francisco, CA, USA*, April 2014. **Nominated for Best Poster Award**.
- [5] **Yasser Khan**, Adrien Pierre, Claire Lochner, and Ana Claudia Arias. Printed pulse oximeter for wearable medical sensor patch. In *NASCENT IAB Meeting, Austin, TX, USA*, January 2014. **Best Poster Award**.
- [6] **Yasser Khan**, Changxu Liu, Diego Molinari, Boon Ooi, and Andrea Fratalocchi. Energy harvesting in complex systems. In *Electrical Engineering Days, King Abdullah University of Science and Technology*, February 2012. **Best Poster Award**.

- [7] **Yasser Khan**, Josh Ballard, Justin Alexander, Miles Larkin, and Boon Ooi. Controllable electrochemical etching of tungsten stm tips. In *First WEP Research Poster Session, King Abdullah University of Science and Technology*, January 2011. **Best Poster Award**.
- [8] **Yasser Khan**, Yaping Zhang, Muhammad Amin, Tien Khee Ng, Jamie Phillips, Hakan Bagci, and Boon Ooi. Zno nanorods for simultaneous light trapping and transparent electrode application in solar cells. In *First Graduate Research Symposium, King Abdullah University of Science and Technology*, May 2011. **Best Poster Award**.

Patents

- [1] Ana Claudia Arias, Claire Lochner, Adrien Pierre, and **Yasser Khan**. Reflectance based pulse oximetry systems and methods, February 4 2020. US Patent 10,548,519.
- [2] Michel Maharbiz, Vivek Subramanian, Ana Claudia Arias, Sarah Swisher, Amy Liao, Monica Lin, Felipe Pavinatto, **Yasser Khan**, Daniel Cohen, Elisabeth Leeflang, and others. Methods and apparatus for monitoring wound healing using impedance spectroscopy, November 5 2019. US Patent 10,463,293.
- [3] Claire Meyer Lochner, Rachel Nancollas, Jacob Sadie, **Yasser Khan**, and Ana Claudia Arias. Flexible, non-invasive real-time hematoma monitoring system using near-infrared spectroscopy, May 3 2018. US Patent App. 15/852,366.
- [4] **Yasser Khan**, Donggeon Han, Adrien Pierre, Jonathan Ting, Xingchun Wang, Claire M Lochner, and Ana C Arias. Printed all-organic reflectance oximeter array, November 28 2019. International Patent App. PCT/US20 19/033381.
- [5] Yuxin Liu, Zhenan Bao, and **Yasser Khan**. Stretchable electrocardiogram (ecg) apparatuses, November 24 2022. US Patent App. 17/772,457.

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