

JUNGKYU (JAY) KIM

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RESEARCH AREA

Bioelectronics and Biosensor: Capillary microfluidics, CMOS Impedance Biosensor

Organ Chips: Cornea Chip, Glaucoma Chip, Kidney Chip, Bone Chip

Space Instrument development: Microfabricated Organic Analyzer for Biosignatures (MOAB)

EXPERIENCE

Associate Professor — 2019-Present

Mechanical Engineering, Biomedical Engineering (Adjunct), Moran Eye Center(Adjunct)

University of Utah

Research Areas: Biosensors, Organ chips, Space Instrumentations

Assistant Professor — 2013-2019

Mechanical Engineering, Texas Tech University

Research Areas: Sensors and actuators, Organ chips, Space Instrumentations

Postdoctoral Research Associate — 2009-2012

Chemistry and Electrical Engineering

University of California at Berkeley (Advisor: Richard A. Mathies)

Research Areas: Microfluidics, Point-of-care diagnostics, Bioelectronics

Graduate Researcher — 2003-2008

Biomedical Engineering, University of Utah (Advisor: Bruce K. Gale)

Research Areas: Micromachining and microfabrication

Research Scientist 1999-2002

Biomedical Research Center, Korea Institute Science Technology (KIST)

Research Areas: Tissue Engineering, cell mechanics

EDUCATION

Ph.D.	Biomedical Engineering	University of Utah	2009
M.S.	Mechanical Engineering	Sogang University	2002
B.S.	Biomedical Engineering	Inje University	2000

REFERRED JOURNAL PUBLICATIONS

1. Matin Golozar, Zachary Estlack, Claire Jenkins, Anna Butterworth, **J. Kim***, Richard Mathies*, High-performance capillary electrophoresis biosignature analysis under micro-and hyper-gravity conditions using a flight-format Microfluidic Organic Analyzer (MOA) (Under Review)
2. M Kim, K Choi, D Krizaj, **J. Kim***, Regulation of Corneal Stromal Cell Behavior by Modulating Curvature Using a Hydraulically Controlled Organ Chip Array (Under Review)
3. Noori Na, Minju Kim, **J. Kim***, Jiyoung Chang, Fabrication and customization of highly porous PLGA membranes utilizing near-field electrospinning, thermal transitions, and multilayer strategies (Under Review)

4. Aaron Pital, Megan Bromley, Max Dorn, **J. Kim**, Amanda Stockton, Analysis of Early Iron Sulfide, Carbonate, and Phosphate Mineral Analogues Produced by Flow-Driven Precipitation in a Microchannel, *Astrobiology* 24 (2), 138-150, 2024
5. AL Butterworth, M Golozar, Z Estlack, J McCauley, RA Mathies, **J. Kim***, Integrated high performance microfluidic organic analysis instrument for planetary and space exploration, *Lab on a Chip* 24 (9), 2551-2560, 2024
6. Z. Estlack, M. Golozar, A.L. Butterworth, R.A. Mathies, **J. Kim***, Operation of a programmable microfluidic organic analyzer under microgravity conditions simulating space flight environments, *npj Microgravity* 9 (1), 41, 2023 ([Highlighted in Phys.org](#))
7. T. Lim, S. Won, M. Kim, M.A. Trout, **J. Kim**, J.A. George, H. Zhang, Multiscale Material Engineering of a Conductive Polymer and a Liquid Metal Platform for Stretchable and Biostable Human-Machine-Interface Bioelectronic Applications, *ACS Materials Letters*, 4, 2289-2297, 2022
8. C. Govinda Raj, M. Cato, NC Speller, Z. Duca, P. Putman, J. Epperson, S. Foreman, **J. Kim**, A. Stockton, Icy Moon Penetrator Organic Analyzer Post-Impact Component Analysis, *Frontiers in Astronomy and Space Sciences*, 9, 943594, 2022
9. Z. Estlack and **J. Kim***, Microvalve array fabrication using selective PDMS bonding through Perfluorooctyl-trichlorosilane passivation for long-term space exploration, *Scientific Reports (NPG)*, 12 (1), 1-10, 2022
10. T. Lim, M. Kim, A. Akbarian, **J. Kim**, P. Tresco, H. Zhang, Nanostructured conductive polymer enables biostable liquid metal electrodes for bioelectronic applications, *Advanced Healthcare Materials*, 2102382, 2022
11. JW Park, LW Jang, E. C Jensen, A. Stockton, **J. Kim***, Sensing Techniques for Organochlorides through Intermolecular Interaction with Bicyclic Amidines, *Biosensors*, 11, 413, 2021
12. A. Pital, **J. Kim**, A. Stockton, Colloid precipitation, and interactions at a flowing solution-solution interface in confined geometries, *Colloids and Surfaces A*, 629, 127431, 2021
13. Ali Khodayari Babil, Vladimir Coltisor, Zachary Estlack, and **J. Kim***, A pneumatically controlled microfluidic rectifier enabling zero back flow under pulsatile flow regime, *Journal of Micromechanics and Microengineering* 31,095009, 2021
14. Ali Khodayari Babil, Drago Sticker, Mario Rothbauer, Peter Ertl, and **J. Kim***, A microfluidic microparticle-labeled impedance sensor array for enhancing immunoassay sensitivity, *Analyst*, 146, 3289-98, 2021
15. Adam Shebindu, Himali Somaweera, Zachary Estlack, Jungtae Kim, **J. Kim***, A fully integrated isotachopheresis with a programmable microfluidic platform, *Talanta*, 225, 122039, 2021
16. Himali Somaweera, Md Enayet Razu, Zachary Estlack, Jasmine Devadhasan, Jungtae Kim, and **J. Kim***, Characterization and optimization of Pacific Blue Succinimidyl Ester dye for Isotachopheresis on a PDMS microchip, *Micromachine*, 11, 951, 2020
17. Quoc Nguyen#, Zachary Estlack#, Amanda Stockton, and **J. Kim***, A Flexible Capacitance Sensor Integrated Microvalve Array for Monitoring and Controlling Actuation, *Sensors and Actuators B: Chemical*, 282, 171-176, 2019
18. Md Enayet Razu# and **J. Kim***, Digital microfluidics using differentially polarized interface (DPI) to enhance translational force, *Lab Chip*, 18, 3293-3302, 2018

19. Joohyung Lee, Zachary Estlack, Himali Somaweera, Xinmei Wang, Carla M.R. Lacerda, **J. Kim***, A Universal Cardiac Flow Profile Generator for Shear Stress Effects on Valvular Endothelial Cells, Lab chip,18, 2946-2954, 2018 ([Selected for back cover](#))
20. Jasmine Devadhasan and **J. Kim***, Multiplexing Metal Contaminant Detection on a Chemically Patterned Paper-based Microfluidic Device (C-microPAD), Sensors and Actuators B: Chemical, 273, 18-24, 2018
21. Ali Khodayaribavil and **J. Kim***, A Capillary Flow-Driven Microfluidic Device for Microparticle-Labeled Immunoassays, Analyst,143, 3335-3342,2018
22. Devasier Bennet, Zachary Estlack, Ted Reid, and **J. Kim***, A human corneal epithelium-on -a-chip for evaluating eye drop mass transport, Lab Chip, 18 (11), 1539-1551, 2018 ([Selected for back cover](#))
23. Footprint of droplets after impact onto paper surfaces with a hydrophobic barrier, J.O. Marston, M. Moradiafrapoli, C. Li, T. Lam, M.E. Razu, **J. Kim**, Chemical Engineering Research and Design 133, 103-110 ([Selected as a front cover](#))
24. Richard A. Mathies, Md Enayet Razu, **J. Kim**, Amanda Stockton, Paul Turin, Anna Butterworth, Feasibility of Detecting Bioorganic Compounds in Enceladus Plumes with the Enceladus Organic Analyzer (EOA), Astrobiology, 17,902-912, 2017
25. Xinmei Wang, Joohyung Lee, Mir Ali, **J. Kim**, Carla M.R. Lacerda, Mechanobiological Response of Aortic Valve Interstitial Cells under microfluidic platforms, Annals of Biomedical Engineering, 45, 2269-2280, 2017
26. Zachary Estlack, Devasier Bennet, Ted Reid, and **J. Kim***, Microengineered Biomimetic Ocular Models for Ophthalmological Drug Development, Lab Chip 17 (9), 1539-1551, 2017
27. Lam Trinh, Jasmine Devadhasan, Ryan Howse, and **J. Kim***, A Chemically Patterned Paper-based Microfluidic Device (c-PAD) for Point-of-Care Diagnostics, Sci. Rep., 7,1188, 2017
28. Lee-Woon Jang, Md Enayet Razu, Erik C Jensen, Hong Jiao, **J. Kim***, A fully automated microfluidic micellar electrokinetic chromatography analyzer for organic compound detection, Lab Chip, 16, 3558-64, 2016
29. **J. Kim**, Amanda Stockton, Erik Jensen, and Richard Mathies, Programmable microfluidics for chemical and biochemical analysis, Lab Chip, 16, 812-819, 2016
30. Yun Kyung Jung, **J. Kim**, Richard A. Mathies, Microfluidic Hydrogel Arrays: Detection of Cystic Fibrosis Transmembrane Conductance Regulator Genetic Variants, Biosensors and Bioelectronics, 79, 371-378
31. Gregory Linshiz, Erik Jensen, Nina Stawski, Changhao Bi, Nick Elsbree, Hong Jiao, **J. Kim**, Richard Mathies, Jay D. Keasling, and Nathan J. Hillson, End-to-end automated microfluidics platform for synthetic biology: from design to functionality analysis, Journal of Biological Engineering,10,1-10, 2016
32. B. Jeong, C.Pettit, H.Keum, J. Lee, **J. Kim.**, S. Kim, M.D. McFarland., B. A. Lawrence, A. F. Vakakis, H. Cho, Microcantilever System Incorporating 1:3 Internal Resonance for Multi-Harmonic Nonlinear Atomic Force Microscopy, Nanotechnology, 27, 125501, 2016
33. Lee-Woon Jang, Joohyung Lee, Razu Md Enayet, Erik Jensen, and **J. Kim***, Nanocomposite PDMS devices for biomedical application, IEEE Transactions Nanobioscience,14, 841-849, 2015
34. Yun Kyung Jung, **J. Kim**, Richard A. Mathies, Microfluidic Linear Hydrogel Array for Multiplexed Single Nucleotide Polymorphism (SNP) Detection, Anal. Chem., 87, 3165-70, 2015

35. Joohyung Lee, Razu Md Enayet, Xinmei Wang, Carla Lacerda, and **J. Kim***, Biomimetic cardiac microsystems for pathophysiological studies and drug screens, *Journal of Laboratory Automation*, 20, 96-106, 2015
36. J.W. Parks M.A. Olson, **J. Kim**, D. Ozcelik, H. Cai, R. Carrion Jr., J.L. Patterson, R.A. Mathies, A.R. Hawkins, and H. Schmidt, Integration of programmable microfluidics and on-chip fluorescence detection for biosensing applications, *Biomicrofluidics*, 8, 054111, 2014
37. Jitae Kim, Simon Song, Joohyung Lee, **J. Kim***, Rapid prototyping of multi-layered 3-D microfluidic cartridge for electrochemical sensing platform, *Sensors and Actuators B: Chemical*, 202, 60-66, 2014
38. Jonathan Hui, Woohyuk Lee, Suzie Pun, **J. Kim***, Deok-Ho Kim, Microfluidic assisted drug carrier production and screening, *Advanced Drug Delivery Reviews*, 65, 1575-1588, 2013
39. Karl Skucha, Simone Gambini, Paul Liu, Mischa Megens, **J. Kim** and Bernhard Boser, Design Considerations for CMOS-Integrated Hall-Effect Magnetic Bead Detectors for Biosensor Applications, *IEEE/ASME Journal of Microelectromechanical Systems*, 22, 1327-1338, 2013
40. **J. Kim**, Erik Jensen, Amada Stockton and Richard A. Mathies, Universal Microfluidic Automaton for Autonomous Sample Processing: Application to the Mars Organic Analyzer, *Anal. Chem.*, 85, 7682-7688, 2013
41. **J. Kim***, Cody Gorkrhe, John Elsnab, Bruce K. Gale, Microfluidic integrated multi-walled carbon nanotube (MWCNT) sensor for electrochemical nucleic acid concentration measurement, *Sensors and Actuators B: Chemical*, 185, 370-376, 2013
42. Erik C. Jensen, Amanda Stockton, Thomas Chisel, Jungkyu Kim, and Richard A. Mathies, Digital Microfluidic automaton for multi-scale combinatorial mixing and sample processing, *Lab Chip*, Vol. 13, 288-296, 2013
43. Simone Gambini, Karl Skucha, Paul Liu, Jungkyu Kim, Reut Krigel, "A 10kPixel CMOS Hall Sensor Array with Baseline Suppression and Parallel Readout for Immunoassays", *IEEE Journal of Solid-State Circuits*, Vol. 48, No. 1, pp. 302-317, 2013
44. Jungkyu Kim, Minjee Kang, Erik C. Jensen, Richard A. Mathies, Lifting gate PDMS microvalves and pumps for microfluidic control, *Anal. Chem.* Vol.84, pp.2067-2071, 2012
45. Paul Liu, Karl Skucha, Yida Duan, Mischa Megens, Jungkyu Kim, Igor Izyumin, Simone Gambini, Bernhard Boser, Magnetic relaxation detector for microbead labels, *IEEE Journal of Solid-State Circuit*, Vol.47, pp.1056-1064, 2012
46. Avraham Bromberg, Erik C. Jensen, Jungkyu Kim, Yun K. Jung, and Richard A. Mathies, Microfabricated hydrogel microarray for rapid single-nucleotide polymorphism detection, *Anal. Chem.* Vol.84, pp.963-970, 2012
47. Jungkyu Kim, Michael A. Johnson, Rahul Sonkul, Parker Hill, Jongwon Kim and Bruce K. Gale, Automated programmable microfluidic DNA/RNA extraction system with both disposable and reusable components. *Journal of Micromech. Microeng.*, Vol.22, pp.015007, 2012
48. Jungkyu Kim, Inseong Hwang, Derek Britain, Taekdong Jeong and Deok-Ho Kim, Microfluidic approaches for gene delivery and therapy, *Lab Chip*, Vol.11, pp. 3941-3948, 2011
49. Jungkyu Kim, Erik C. Jensen, Mischa Megens, Bernhard Boser and Richard A. Mathies, Microfluidic bio-processor for solid phase capture immunoassays, *Lab Chip*, Vol.11, pp.3106-3112, 2011

50. Erik C. Jensen, Yong Zeng, Jungkyu Kim, Richard A. Mathies, Microvalve enabled digital microfluidic systems for high performance biochemical and genetic analysis, *Journal of Laboratory Automation*, Vol.5, pp. 455-463, 2010
51. Jitae Kim, Michael Mauk, Dafeng Chen, Xianbo Qiu, Jungkyu Kim, Bruce Gale, and Haim H. Bau, A PCR reactor with an integrated alumina isolation membrane, *Analyst*, Vol.135, pp. 2408-2414, 2010
52. Jungkyu Kim, Adam Miles and Bruce K. Gale, Improved biomolecule microarrays by printing on nanoporous aluminum oxide using a continuous-flow microspotter, *Small*, Vol. 13, pp.1415-1421, 2010
53. Jungkyu Kim, Michael A. Johnson, Parker Hill and Bruce K. Gale, Microfluidic sample preparation technique: Lysis to nucleic acid purification, *Integrative Biology*, Vol.1, pp.574- 586, 2009 (Most accessed article)
54. Jungkyu Kim, Rajesh Surapaneni and Bruce K. Gale, Rapid prototyping of microfluidic systems using a PDMS/polymer tape composite, *Lab Chip*, Vol. 9, pp.1290-1293, 2009
55. Jungkyu Kim, Michael Junkin, Deok-Ho Kim, Seunglee Kwon, Young Shik Shin, Pak Kin Wong, and Bruce K. Gale, Application, Technique and microfluidic interface for nanoscale biosensing, *Microfluid. Nanofluid.*, Vol.7, Issue 2, pp.149-167, 2009
56. Mark A. Eddings, Adam Miles, Josh Eckman, Jungkyu Kim, Bruce K. Gale, and David Myszka, Improved continuous-flow print head for micro-array deposition, *Anal. Biochem.*, Vol. 382, pp. 55-59, 2008
57. Jungkyu Kim and Bruce K. Gale, Quantitative and qualitative analysis of a microfluidic DNA extraction system using a nanoporous AlOx membrane, *Lab Chip*, Vol. 8, pp. 1516-1523, 2008
58. Jungkyu Kim, Karl Voelkerding, Bruce K. Gale, Patterning of an AlOx nanoporous membrane for multi-sample DNA extraction, *Journal of Micromech. Microeng.*, Vol. 16, pp. 33-39, 2006
59. Jong Eun Lee, Mee Hyun Jeong, Hyun Jeong Ahn, Jungkyu Kim, Kuiwon Choi, Chong Bum Chang, Hee Joong Kim, Sang Chul Seong, and Myung Chul Lee, Evaluation of Chondrogenesis in Collagen / Chitosan / Glycosaminoglycan Scaffolds for Cartilage Tissue Engineering, *Tissue Engineering and Regenerative Medicine*, Vol. 2, pp 41 -49, 2005
60. Baek-Hee Lee, Jungkyu Kim, Young Do Kim, Kuiwon Choi, Kyu Hwan Lee, In vivo behavior and mechanical stability of plasma spray coated and chemically treated titanium implants, *Journal of Biomedical Material Research*, Vol. 69A, pp.279-285, 2004
61. Hee Wook Moon, Moon Kyu Lee, Jungkyu Kim, Tae Soo Lee, Kuiwon Choi, The study of changes in compressive strength of trabecular bone with PMMA injection in Vertebroplasty *Journal of Biomedical Engineering Research*, Vol.24, No.4, pp.369-373, 2003
62. Byong Soo Kim, Bae Tae Soo, Jungkyu Kim, Kuiwon Choi, Influence of Impact Angle on Deformation in Proximal Femur during Sliding Falling, *Journal of Biomedical Engineering Research*, Vol.24, pp.233-239, 2003
63. Jungkyu Kim; Tae Soo Lee, Eun Hee Bae, Yang Sook Park, Kuiwon Choi, The effect of a cyclic compressive strain on the differentiation of osteoblast-like cell (MC3T3-E1) in 3-dimensional scaffolds, *Journal of Korean Orthopedic Research Society*, Vol. 5, No.1, pp 69-75, 2002
64. Moon Kyu Lee; Jungkyu Kim; Kuiwon Choi; In Ho Choi, Gon Khang, The effect of the cross- pins on the fixation stiffness using finite element method in fracture of femoral shaft, *Journal of Korean Orthopedic Research Society*, Vol. 5, No.1, pp 26-33, 2002

65. Tae Soo Bae, Jungkyu Kim, Tae Soo Lee, Kuiwon Choi, A Study of the Mechanical Properties of Human Trabecular Bone by Spherical Indentation Test, Journal of Biomedical Engineering Research, Vol.22, No. 5, pp 419-424, 2001

SELECTED CONFERENCE PROCEEDINGS

- M. Kim and **J. Kim**, Investigating the effect of curvature on corneal endothelial cell using a microfabricated cornea chip, ARVO24
- J. Kim, A. K. Bivil, N. Kim, Integrated Impedimetric Immunosensor Array with Two-Stage Capillary Microfluidics for Advanced Digital Diagnostics, World Congress Biosensor 2023 (**Oral**)
- Z. Estlack, M. Golozar, A. Butterworth, R. A. Mathies, and **J. Kim**, An automated and multiplexing microfluidic system for in-situ biomarker analysis for astronaut health monitoring, MicroTAS 23(**Oral**)
- S. Su, A. Merryweather, A. Chourasia, K. Cluff, **J. Kim**, An Engineered Subcutaneous Self-Injection Testbed to Assess the Impact of Fluid Viscosity, Syringe Type, and Needle Gauge, Human Factor Symposium 2023 (**Oral**)
- M. Kim, K. Choi, J. Kim Regulation of cornea stromal cell phenotype by modulating substrate curvature, ARVO 2023 (**Oral**)
- M. Kim, D. Krizaj, J. Kim, The effect of ultraviolet A on TRPV1 and 4 activations on corneal endothelium, ARVO 2023
- G. Tello, K. Choi, J. Kim*, H Zhang*, Design of a Hands-Free Braille Display Using a Pneumatically Controlled Wristband, IEEE Sensors, 1-4, 2022 (**Oral**)
- Z. Estlack, A.L. Butterworth, M. Golozar, N. Parsley, R.A. Mathies, **J Kim**, Microgravity Test Plan for a Fully Integrated Programmable Microfluidic Organic Analyzer, LPI Contributions, 2678, 2812, 2022
- M. Kim, K. Choi, Y. Ann, and **J. Kim**, The effect of curvature on corneal keratocytes using a pneumatically controlled organ chip, microTAS 2022
- Z. Estlack, M. Golozar, A. Butterworth, R. A. Mathies, and **J. Kim**, The functionality of programmable microfluidics in microgravity, microTAS 2022
- M. Cato, C. G. Raj, N. Speller, Z. Duca, A. Stockton, P. Putman, J. Epperson, **J. Kim**, Icy Moon Penetrator Organic Analyzer (IMPOA) Impact Test Results, IEEE Aerospace Conference 2022
- Z. Estlack, M. Golozar, A. Butterworth, J. McCauley, R. A. Mathies, and **J. Kim**, A robust programmable microfluidic platform for long-term space exploration, microTAS 2021
- M. Kim, Z. Estlack, and **J. Kim**, Precise recapitulation of corneal curvature for biomechanical response of keratocytes, microTAS 2021
- A. Shebindu, H. Somaweera, Z. Estlack, and **J. Kim**, Integrated isotachopheresis with a programmable microfluidic platform for multiplexed sample preconcentration, microTAS 2020
- Z Estlack, M.E. Razu, B. Compton, Z. Duca, A Stockton, M Golozar, A Butterworth, J McCauley, J New, **J Kim**, and R.A. Mathies, Enceladus Organic Analyzer: instrumentation and methods for detecting trace organic molecules in our solar system, microTAS 2019
- A.K. Bivil, D Sticker, P Ertl, and **J Kim***, An integrated capillary-driven impedimetric biosensor for microparticle-labeled immunoassay, microTAS 2019

- Z Estlack, M E Razu, B Compton, J Kim, A selective PDMS bonding technique using microcontact printing for the fabrication of high-density microvalve array, IMECE 2019
- A. K. Babil, D Rho, S Kim, J Kim, An Optical Cavity Biosensor Integrated with Capillary-Driven Microfluidics for Label-Free Immunoassays, IMECE 2019 (NSF research poster competition)
- A. K. Babil, D. Sticker, P. Ertl, and J. Kim, Impedance Signal Amplification using Microparticle Labeling for Point-of-Care Immunoassay, BMES 2019
- A. K. Babil and J Kim, A capillary flow driven microfluidic device for microparticle-labeled immunoassay, MicroTAS 2017
- Q Nguyen and J Kim, A flexible capacitance sensor integrated microvalve array for controlling and monitoring actuation, MicroTAS 2017
- Z Estlack, D Bennet, and J Kim, A microengineered human cornea-on-a-chip for evaluating mass transport of ocular drugs, MicroTAS 2017
- D Bennet, Z Estlack, and J Kim, A human corneal epithelium on a chip for evaluating the pharmacokinetics of ocular drugs, 49th IEEE-EMBC, 2017
- M E Razu and J Kim, Induced lateral electric field DC digital microfluidics, 30th IEEE International Conference on Micro Electro Mechanical Systems (MEMS), 2017
- Pettit, C., Jeong, B., Keum, H., Lee, J Kim, J. Kim, S., McFarland, D. M., Bergman, L., Vakakis, A. F., Cho, H., Microcantilever system incorporating internal resonance for multi-harmonic atomic force microscopy. 28th IEEE International Conference on Micro Electromechanical Systems (MEMS), 2015
- L.W. Jang, S.H. Jang, D. Sticker, P. Ertl and J. Kim*, Impedance-based microparticle counter on an interdigitated electrode (IDE) surface with single-bead sensitivity, MicroTAS 2015.
- J. Lee, J. Kim, S. Song, and J. Kim*, A membrane-embedded disposable microfluidic chip for cardiac biomarker screenings, MicroTAS 2014.
- E.C. Jensen, J. Lee, H. Mehrabani, H. Jiao, and J. Kim*, Microfluidic capillary electrophoresis system for organochloride detection and speciation, MicroTAS 2014.
- J. Kim, A. M. Stockton, P. A. Willis, R. Lillis, R. Amundson, L. Beegle, A. Butterworth, D. Curtis, P. Ehrenfreund, F. Grunthaner, R. Hazen, R. Kaiser, M. Ludlam, M. F. Mora, J. Scherer, P. Turin, K. Welten, K. Williford, Mathies R. A. The Mars Organic Analyzer: Instrumentation and Methods, MicroTAS 2014.
- H. Cai, J.W. Parks, T. Wall, K. Leake, T. Yuzvinsky, **J. Kim**, R. Carrion, J. Patterson, R.A. Mathies, A.R. Hawkins, and H. Schmidt, "Integrated optofluidics for on-chip biological sample preparation and analysis", SPIE Photonics West Conference 2014
- S. Gambini, K. Skucha, P. Liu, **J. Kim**, R. Mathies, B. Boser, "A CMOS 10k pixel, baseline-free magnetic bead detector with column parallel readout for miniaturized immunoassays", IEEE International Solid-State Circuits Conference (ISSCC), 2012
- **J. Kim**, E. C. Jensen, M. Megens, B. Boser and R. A. Mathies, "Microfluidic platform for automated microparticle label immunoassay", MicroTAS 2011, Seattle, USA
- P. Liu, K. Skucha, Y. Duan, M. Megens, **J. Kim**, I. Izyumin, S. Gambini, and B. Boser, "Magnetic Relaxation Detector for Microbead Labels in Biomedical Assays", Symposium on VLSI Circuits 2011, Kyoto, Japan

- K. Skucha, P. Liu, M. Megens, **J. Kim** and B. Boser, "A Compact Hall- effect Sensor Array for the Detection and Imaging of Single Magnetic Beads in Biomedical Assays", Transducers 2011, Beijing, China

AWARDS

2017	Whitacre College of Engineering Research Award
2015	ME Department Research Award
2013& 2014	Best Professor Award (Pi Tau Sigma Honorary Society)
2007	Finalist in UEC (Utah Entrepreneur Challenge)
2006	Pierre Lassonde Center Fellowship

PROFESSIONAL SERVICES

2008-present	Reviewer for Lab-on-a-chip (RSC) / Molecular Biosystems (RSC) / Nanomedicine (Elsevier) Sensors and Actuator A: Physics / B: Chemical (Elsevier)/Journal of engineering in medicine / Microfluidics and Nanofluidics (Springer) ACS Applied Materials & Interfaces (ACS Publications), Journal of Biological Engineering (BMC)/ Electrophoresis (Wiley), Nature Protocol (NPG)/Scientific Report (NPG) etc.
2015-Present	Reviewers for BMES conference
2018	IEEE-Nanomed 2018-Technical Committee
2017	NASA review panel for TRISH program
2017	Houchen Portable Award Judge, MicroTAS 2017
2016-present	Editorial Board Member: Scientific Report (NPG)
2015	IEEE-Nanomed Technical Committee
2015-Present	NASA review panel for instrumentation program
2014-2017	Adhoc grant reviewer for USDA
2014-present	Proposal reviewer for National Science Foundation
2014-present	Board Member, Annual US-KOREA BMES Symposium
2014	BMES 2014, Session Chair on Microfluidic Technique II
2013	IEEE-EMBC 2013, Session Chair on BioMEMS

INSTITUTIONAL SERVICES

2023- present	Faculty search committee (Adv. Manufacturing)
2023- present	Faculty Award Committee
2021 - present	Micromachining Qual Examiner
2021-2022	Micro/Nano track committee
2021-2022	Dept. Scholarship committee
2020-2022	Dept. Seminar committee
2019- present	Dept. Safety committee chair
2019	Dept. Chair search committee member
2018	Graduate program committee
2017	Faculty search committee
2017	Seminar series coordinator
2016	Chair search committee member
2015	Space committee member
2015	Seminar series coordinator

PUBLIC SERVICES

2015	FIRST in TEXAS, Judge
2015	Clark Scholar Program for K12