Interface Monitoring System to Promote Residual Limb Health

List of Other Publications Arising from: Interface Monitoring System to Promote Residual Limb Health

Funded by: Eunice Kennedy Shriver National Institute of Child Health & Human Development (NICHD) and National Institute of Biomedical Imaging and Bioengineering (NIBIB) 5R01EB019337

Bai W, Yang H, Ma Y, Chen H, Shin J, Liu Y, Yang Q, Kandela I, Liu Z, Kang SK, Wei C, Haney CR, Brikha A, Ge X, Feng X, Braun PV, Huang Y, Zhou W, Rogers JA. Flexible Transient Optical Waveguides and Surface-Wave Biosensors Constructed from Monocrystalline Silicon. Adv Mater. 2018 Aug;30(32):e1801584. doi: 10.1002/adma.201801584. Epub 2018 Jun 26. PubMed PMID: 29944186; PubMed Central PMCID: PMC6148372.
Chen H, Zhu F, Jang KI, Feng X, Rogers JA, Zhang Y, Huang Y, Ma Y. The equivalent medium of cellular substrate under large stretching, with applications to stretchable electronics. J Mech Phys Solids. 2018 Nov;120:199-207. doi: 10.1016/j.jmps.2017.11.002. Epub 2017 Nov 7. PubMed PMID: 30140108; PubMed Central PMCID: PMC6101674.
Choi J, Xue Y, Xia W, Ray TR, Reeder JT, Bandodkar AJ, Kang D, Xu S, Huang Y, Rogers JA. Soft, skin-mounted microfluidic systems for measuring secretory fluidic pressures generated at the surface of the skin by eccrine sweat glands. Lab Chip. 2017 Jul 25;17(15):2572-2580. doi: 10.1039/c7lc00525c. PubMed PMID: 28664954; PubMed Central PMCID: PMC5561737.
Crawford KE, Ma Y, Krishnan S, Wei C, Capua D, Xue Y, Xu S, Xie Z, Won SM, Tian L, Webb C, Li Y, Feng X, Huang Y, Rogers JA. Advanced approaches for quantitative characterization of thermal transport properties in soft materials using thin, conformable resistive sensors. Extreme Mech Lett. 2018 Jul;22:27-35. doi: 10.1016/j.eml.2018.04.002. Epub 2018 May 3. PubMed PMID: 30923731; PubMed Central PMCID: PMC6435340.
Fan Z, Zhang Y, Ma Q, Zhang F, Fu H, Hwang KC, Huang Y. A finite deformation model of planar serpentine interconnects for stretchable electronics. International Journal of Solids and Structures. 2016 August;91:46-54. PubMed PMID: 27695135; PubMed Central PMCID: PMC5042350.
Fu H, Nan K, Froeter P, Huang W, Liu Y, Wang Y, Wang J, Yan Z, Luan H, Guo X, Zhang Y, Jiang C, Li L, Dunn AC, Li X, Huang Y, Zhang Y, Rogers JA. Mechanically-Guided Deterministic Assembly of 3D Mesostructures Assisted by Residual Stresses. Small. 2017 Jun;13(24). doi: 10.1002/smll.201700151. Epub 2017 May 10. PubMed PMID: 28489315; PubMed Central PMCID: PMC5559729.
Fu H, Nan K, Bai W, Huang W, Bai K, Lu L, Zhou C, Liu Y, Liu F, Wang J, Han M, Yan Z, Luan H, Zhang Y, Zhang Y, Zhao J, Cheng X, Li M, Lee JW, Liu Y, Fang D, Li X, Huang Y, Zhang Y, Rogers JA. Morphable 3D mesostructures and microelectronic devices by multistable buckling mechanics. Nat Mater. 2018 Mar;17(3):268-276. doi: 10.1038/s41563-017-0011-3. Epub 2018 Jan 29. PubMed PMID: 29379201; PubMed Central PMCID: PMC5877475.
Han S, Kim J, Won SM, Ma Y, Kang D, Xie Z, Lee KT, Chung HU, Banks A, Min S, Heo SY, Davies CR, Lee JW, Lee CH, Kim BH, Li K, Zhou Y, Wei C, Feng X, Huang Y, Rogers JA. Battery-free, wireless sensors for full-body pressure and temperature mapping. Sci Transl Med. 2018 Apr 4;10(435). doi: 10.1126/scitranslmed.aan4950. PubMed PMID: 29618561; PubMed Central PMCID: PMC5996377.
Jang KI, Jung HN, Lee JW, Xu S, Liu YH, Ma Y, Jeong JW, Song YM, Kim J, Kim BH, Banks A, Kwak JW, Yang Y, Shi D, Wei Z, Feng X, Paik U, Huang Y, Ghaffari R, Rogers JA. Ferromagnetic, folded electrode composite as a soft interface to the skin for long-term electrophysiological recording. Adv Funct Mater.

Interface Monitoring System to Promote Residual Limb Health

List of Other Publications Arising from: Interface Monitoring System to Promote Residual Limb Health

Funded by: Eunice Kennedy Shriver National Institute of Child Health & Human Development (NICHD) and National Institute of Biomedical Imaging and Bioengineering (NIBIB) 5R01EB019337

2016 Oct 25;26(40):7281-7290. doi: 10.1002/adfm.201603146. Epub 2016 Sep 9. PubMed PMID: 28413376; PubMed Central PMCID: PMC5390688.
Kim J, Salvatore GA, Araki H, Chiarelli AM, Xie Z, Banks A, Sheng X, Liu Y, Lee JW, Jang KI, Heo SY, Cho K, Luo H, Zimmerman B, Kim J, Yan L, Feng X, Xu S, Fabiani M, Gratton G, Huang Y, Paik U, Rogers JA. Battery-free, stretchable optoelectronic systems for wireless optical characterization of the skin. Sci Adv. 2016 Aug 3;2(8):e1600418. doi: 10.1126/sciadv.1600418. eCollection 2016 Aug. PubMed PMID: 27493994; PubMed Central PMCID: PMC4972468.
Kim J, Gutruf P, Chiarelli AM, Heo SY, Cho K, Xie Z, Banks A, Han S, Jang KI, Lee JW, Lee KT, Feng X, Huang Y, Fabiani M, Gratton G, Paik U, Rogers JA. Miniaturized Battery-Free Wireless Systems for Wearable Pulse Oximetry. Adv Funct Mater. 2017 Jan 5;27(1). pii: 1604373. doi: 10.1002/adfm.201604373. Epub 2016 Nov 25. PubMed PMID: 28798658; PubMed Central PMCID: PMC5545889.
Kim BH, Lee J, Won SM, Xie Z, Chang JK, Yu Y, Cho YK, Jang H, Jeong JY, Lee Y, Ryu A, Kim DH, Lee KH, Lee JY, Liu F, Wang X, Huo Q, Min S, Wu D, Ji B, Banks A, Kim J, Oh N, Jin HM, Han S, Kang D, Lee CH, Song YM, Zhang Y, Huang Y, Jang KI, Rogers JA. Three-Dimensional Silicon Electronic Systems Fabricated by Compressive Buckling Process. ACS Nano. 2018 Apr 11. doi: 10.1021/acsnano.8b00180. [Epub ahead of print] PubMed PMID: 29641889. PubMed Central PMCID: PMC5986289.
Koh A, Kang D, Xue Y, Lee S, Pielak RM, Kim J, Hwang T, Min S, Banks A, Bastien P, Manco MC, Wang L, Ammann KR, Jang KI, Won P, Han S, Ghaffari R, Paik U, Slepian MJ, Balooch G, Huang Y, Rogers JA. A soft, wearable microfluidic device for the capture, storage, and colorimetric sensing of sweat. Sci Transl Med. 2016 Nov 23;8(366):366ra165. PubMed PMID: 27881826; PubMed Central PMCID: PMC5429097.
Lee CH, Kim H, Harburg DV, Park G, Ma Y, Pan T, Kim JS, Lee NY, Kim BH, Jang KI, Kang SK, Huang Y, Kim J, Lee KM, Leal C, Rogers JA. Biological lipid membranes for on-demand, wireless drug delivery from thin, bioresorbable electronic implants. NPG Asia Mater. 2015 Nov;7. doi: 10.1038/am.2015.114. Epub 2015 Nov 27. PubMed PMID: 27175221; PubMed Central PMCID: PMC4861403.
Lee JW, Xu R, Lee S, Jang KI, Yang Y, Banks A, Yu KJ, Kim J, Xu S, Ma S, Jang SW, Won P, Li Y, Kim BH, Choe JY, Huh S, Kwon YH, Huang Y, Paik U, Rogers JA. Soft, thin skin-mounted power management systems and their use in wireless thermography. Proc Natl Acad Sci U S A. 2016 May 31;113(22):6131-6. doi: 10.1073/pnas.1605720113. Epub 2016 May 16. PubMed PMID: 27185907; PubMed Central PMCID: PMC4896718.
Lee YK, Yu KJ, Kim Y, Yoon Y, Xie Z, Song E, Luan H, Feng X, Huang Y, Rogers JA. Kinetics and Chemistry of Hydrolysis of Ultrathin, Thermally Grown Layers of Silicon Oxide as Biofluid Barriers in Flexible Electronic Systems. ACS Appl Mater Interfaces. 2017 Dec 13;9(49):42633-42638. doi: 10.1021/acsami.7b15302. Epub 2017 Dec 5. PubMed PMID: 29178781.
Lee YK, Yu KJ, Song E, Barati Farimani A, Vitale F, Xie Z, Yoon Y, Kim Y, Richardson A, Luan H, Wu Y, Xie X, Lucas TH, Crawford K, Mei Y, Feng X, Huang Y, Litt B, Aluru NR, Yin L, Rogers JA. Dissolution of Monocrystalline Silicon Nanomembranes and Their Use as Encapsulation Layers and Electrical Interfaces in Water-Soluble Electronics. ACS Nano. 2017 Dec 26;11(12):12562-12572. doi: 10.1021/acsnano.7b06697. Epub 2017 Dec 14. PubMed PMID: 29178798; PubMed Central PMCID: PMC5830089.

Interface Monitoring System to Promote Residual Limb Health

List of Other Publications Arising from: Interface Monitoring System to Promote Residual Limb Health

Funded by: Eunice Kennedy Shriver National Institute of Child Health & Human Development (NICHD) and National Institute of Biomedical Imaging and Bioengineering (NIBIB) 5R01EB019337

Lee YK, Jang KI Prof, Ma Y, Koh A Prof, Chen H, Jung HN, Kim Y, Kwak JW, Wang L Dr, Xue Y, Yang Y, Tian W, Jiang Y, Zhang Y Prof, Feng X Prof, Huang Y Prof, Rogers JA Prof. Chemical Sensing Systems that Utilize Soft Electronics on Thin Elastomeric Substrates with Open Cellular Designs. Adv Funct Mater. 2017 Mar 3;9(3). doi: 10.1002/adfm.201605476. Epub 2017 Jan 9. PubMed PMID: 28989338; PubMed Central PMCID: PMC5630126.

Liu Y, Yan Z, Lin Q, Guo X, Han M, Nan K, Hwang KC, Huang Y, Zhang Y, Rogers JA. Guided Formation of 3D Helical Mesostructures by Mechanical Buckling: Analytical Modeling and Experimental Validation. Advanced Functional Materials. 2016 May 3;26(17):2909-2918. PubMed PMID: 27499728; PubMed Central PMCID: PMC4972031.

Liu Y, Tian L, Raj MS, Cotton M, Ma Y, Ma S, McGrane B, Pendharkar AV, Dahaleh N, Olson L, Luan H, Block O, Suleski B, Zhou Y, Jayaraman C, Koski T, Aranyosi AJ, Wright JA, Jayaraman A, Huang Y, Ghaffari R, Kliot M, Rogers JA. Intraoperative monitoring of neuromuscular function with soft, skin-mounted wireless devices. NPJ Digit Med. 2018;1. doi: 10.1038/s41746-018-0023-7. Epub 2018 May 23. PubMed PMID: 30882044; PubMed Central PMCID: PMC6419749.

Ma Q, Cheng H, Jang KI, Luan H, Hwang KC, Rogers JA, Huang Y, Zhang Y. A nonlinear mechanics model of bio-inspired hierarchical lattice materials consisting of horseshoe microstructures. Journal of the Mechanics and Physics of Solids. 2016 May;90:179-202. PubMed PMID: 27087704; PubMed Central PMCID: PMC4831080.

Ma Y, Xue Y, Jang KI, Feng X, Rogers JA, Huang Y. Wrinkling of a stiff thin film bonded to a pre-strained, compliant substrate with finite thickness. Proc Math Phys Eng Sci. 2016 Aug;472(2192):20160339. PubMed PMID: 27616928; PubMed Central PMCID: PMC5014113.

Ma Y, Jang KI, Wang L, Jung HN, Kwak JW, Xue Y, Chen H, Yang Y, Shi D, Feng X Prof, Rogers JA Prof, Huang Y Prof. Design of Strain-Limiting Substrate Materials for Stretchable and Flexible Electronics. Adv Funct Mater. 2016 Aug 2;26(29):5345-5351. doi: 10.1002/adfm.201600713. Epub 2016 May 23. PubMed PMID: 29033714; PubMed Central PMCID: PMC5639729.

Ma Y, Pharr M, Wang L, Kim J, Liu Y, Xue Y, Ning R, Wang X, Chung HU, Feng X, Rogers JA, Huang Y. Soft Elastomers with Ionic Liquid-Filled Cavities as Strain Isolating Substrates for Wearable Electronics. Small (Weinheim an der Bergstrasse, Germany). 2017 March;13(9). PubMed PMID: 28026109; PubMed Central PMCID: PMC5332287.

Ma Y, Feng X, Rogers JA, Huang Y, Zhang Y. Design and application of 'J-shaped' stress-strain behavior in stretchable electronics: a review. Lab Chip. 2017 May 16;17(10):1689-1704. doi: 10.1039/c7lc00289k. Review. PubMed PMID: 28470286; PubMed Central PMCID: PMC5505255.

Nan K, Luan H, Yan Z, Ning X, Wang Y, Wang A, Wang J, Han M, Chang M, Li K, Zhang Y, Huang W, Xue Y, Huang Y, Zhang Y, Rogers JA. Engineered elastomer substrates for guided assembly of complex 3D mesostructures by spatially nonuniform compressive buckling. Adv Funct Mater. 2017 Jan 5;27(1). pii: 1604281. doi: 10.1002/adfm.201604281. Epub 2016 Nov 2. PubMed PMID: 28970775; PubMed Central PMCID: PMC5621772.

Interface Monitoring System to Promote Residual Limb Health

List of Other Publications Arising from: Interface Monitoring System to Promote Residual Limb Health

Funded by: Eunice Kennedy Shriver National Institute of Child Health & Human Development (NICHD) and National Institute of Biomedical Imaging and Bioengineering (NIBIB) 5R01EB019337

Ning X, Wang H, Yu X, Soares JANT, Yan Z, Nan K, Velarde G, Xue Y, Sun R, Dong Q, Luan H, Lee CM, Chempakasseril A, Han M, Wang Y, Li L, Huang Y, Zhang Y, Rogers J. Three-Dimensional Multiscale, Multistable, and Geometrically Diverse Microstructures with Tunable Vibrational Dynamics Assembled by Compressive Buckling. Adv Funct Mater. 2017 Apr 11;27(14). doi: 10.1002/adfm.201605914. Epub 2017 Mar 3. PubMed PMID: 29456464; PubMed Central PMCID: PMC5813837.
Shi Yan, Luo Hongying, Gao Li, Gao Cunfa, Rogers John A., Huang Yonggang and Zhang Yihui Analyses of postbuckling in stretchable arrays of nanostructures for wide-band tunable plasmonics 471 Proc. R. Soc. A http://doi.org.ezproxy.galter.northwestern.edu/10.1098/rspa.2015.0632
Shin G, Gomez AM, Al-Hasani R, Jeong YR, Kim J, Xie Z, Banks A, Lee SM, Han SY, Yoo CJ, Lee JL, Lee SH, Kurniawan J, Tureb J, Guo Z, Yoon J, Park SI, Bang SY, Nam Y, Walicki MC, Samineni VK, Mickle AD, Lee K, Heo SY, McCall JG, Pan T, Wang L, Feng X, Kim TI, Kim JK, Li Y, Huang Y, Gereau RW 4th, Ha JS, Bruchas MR, Rogers JA. Flexible Near-Field Wireless Optoelectronics as Subdermal Implants for Broad Applications in Optogenetics. Neuron. 2017 Feb 8;93(3):509-521.e3. doi: 10.1016/j.neuron.2016.12.031. Epub 2017 Jan 26. PubMed PMID: 28132830; PubMed Central PMCID: PMC5377903.
Song J, Feng X, Huang Y. Mechanics and thermal management of stretchable inorganic electronics. National Science Review. 2016 March;3(1):128-143. PubMed PMID: 27547485; PubMed Central PMCID: PMC4991896.
Wang S, Huang Y, Rogers JA. Mechanical Designs for Inorganic Stretchable Circuits in Soft Electronics. IEEE Trans Compon Packaging Manuf Technol. 2015 Sep;5(9):1201-1218. doi: 10.1109/TCPMT.2015.2417801. Epub 2015 May 7. PubMed PMID: 27668126; PubMed Central PMCID: PMC5033128.
Wang H, Ning X, Li H, Luan H, Xue Y, Yu X, Fan Z, Li L, Rogers JA, Zhang Y, Huang Y. Vibration of Mechanically-Assembled 3D Microstructures Formed by Compressive Buckling. J Mech Phys Solids. 2018 Mar;112:187-208. doi: 10.1016/j.jmps.2017.12.002. Epub 2017 Dec 8. PubMed PMID: 29713095; PubMed Central PMCID: PMC5918305.
Xu R, Lee JW, Pan T, Ma S, Wang J, Han JH, Ma Y, Rogers JA, Huang Y. Designing Thin, Ultrastretchable Electronics with Stacked Circuits and Elastomeric Encapsulation Materials. Adv Funct Mater. 2017 Jan 26;27(4). pii: 1604545. doi: 10.1002/adfm.201604545. Epub 2016 Dec 19. PubMed PMID: 29046624; PubMed Central PMCID: PMC5642935.
Yan Z, Zhang F, Wang J, Liu F, Guo X, Nan K, Lin Q, Gao M, Xiao D, Shi Y, Qiu Y, Luan H, Kim JH, Wang Y, Luo H, Han M, Huang Y, Zhang Y, Rogers JA. Controlled mechanical buckling for origami-inspired construction of 3D microstructures in advanced materials. Advanced Functional Materials. 2016 April 25;26(16):2629-2639. PubMed PMID: 27499727; PubMed Central PMCID: PMC4972027.
Yan Z, Zhang F, Liu F, Han M, Ou D, Liu Y, Lin Q, Guo X, Fu H, Xie Z, Gao M, Huang Y, Kim J, Qiu Y, Nan K, Kim J, Gutruf P, Luo H, Zhao A, Hwang KC, Huang Y, Zhang Y, Rogers JA. Mechanical assembly of complex, 3D mesostructures from releasable multilayers of advanced materials. Sci Adv. 2016 Sep 23;2(9):e1601014. eCollection 2016 Sep. PubMed PMID: 27679820; PubMed Central PMCID: PMC5035128.

Interface Monitoring System to Promote Residual Limb Health

List of Other Publications Arising from: Interface Monitoring System to Promote Residual Limb Health

Funded by: Eunice Kennedy Shriver National Institute of Child Health & Human Development (NICHD) and National Institute of Biomedical Imaging and Bioengineering (NIBIB) 5R01EB019337

Yuan JH, Shi Y, Pharr M, Feng X, Rogers JA, Huang Y. A Mechanics Model for Sensors Imperfectly Bonded to the Skin for Determination of the Young's Moduli of Epidermis and Dermis. J Appl Mech. 2016 Aug;83(8):0845011-845013. Epub 2016 May 30. PubMed PMID: 27330219; PubMed Central PMCID: PMC4893765.
Yuan JH, Pharr M, Feng X, Rogers JA, Huang Y. Design of Stretchable Electronics Against Impact. J Appl Mech. 2016 Oct;83(10):1010091-1010095. Epub 2016 Aug 10. PubMed PMID: 27609989; PubMed Central PMCID: PMC4992949.
Yuan J, Dagdeviren C, Shi Y, Ma Y, Feng X, Rogers JA, Huang Y. Computational models for the determination of depth-dependent mechanical properties of skin with a soft, flexible measurement device. Proc Math Phys Eng Sci. 2016 Oct;472(2194):20160225. PubMed PMID: 27843395; PubMed Central PMCID: PMC5095436.
Zhang Y, Webb RC, Luo H, Xue Y, Kurniawan J, Cho NH, Krishnan S, Li Y, Huang Y, Rogers JA. Theoretical and Experimental Studies of Epidermal Heat Flux Sensors for Measurements of Core Body Temperature.
Adv Healthc Mater. 2016 Jan 7;5(1):119-27. doi: 10.1002/adhm.201500110. Epub 2015 May 7. PubMed PMID: 25953120; PubMed Central PMCID: PMC4844556.