

# Wei Gao

## Contact Information

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## Professional Experience

08/2017 – Assistant Professor of Medical Engineering  
Division of Engineering and Applied Science  
California Institute of Technology Pasadena, CA, USA

## Education

07/2014 – 06/2017 Postdoctoral Fellow in Electrical Engineering & Computer Sciences  
University of California, Berkeley Berkeley, CA, USA  
Advisor: Professor Ali Javey

09/2009 – 06/2014 Ph.D. in Chemical Engineering  
University of California, San Diego La Jolla, CA, USA  
Advisor: Professor Joseph Wang

09/2007 – 07/2009 M.S. in Precision Instrument  
Tsinghua University Beijing, China

09/2003 – 07/2007 B.S. in Mechanical Engineering  
Huazhong University of Science & Technology Wuhan, Hubei, China

## Research Interests

Wearable Devices, Biosensors, Flexible Electronics, Micro/Nanorobotics, Micro/Nanomachines, Nanomotors, Nanomaterials, Nanomedicine, BioMEMS, Electrochemistry.

## Awards & Honors

06/2018 McKenna Family Innovation Award  
06/2018 Interstellar Initiative by the New York Academy of Sciences (Outstanding Team Presentation Award)  
02/2018 Sensors Young Investigator Award  
03/2017 ACS Nano Junior Fellow  
08/2016 MIT Technology Review Top 35 Innovators Under 35 (TR35, Global List)  
08/2015 ACS Young Investigator Award (Division of Inorganic Chemistry)  
04/2014 MRS Graduate Student Award  
11/2013 AIChE Bionanotechnology Graduate Student Award (1st place).  
04/2013 MRS Graduate Student Award  
02/2013 Chinese Government Award for Outstanding Students Abroad  
07/2012 HHMI International Student Research Fellowship (2012-2014)  
09/2009 Jacobs Fellowship, University of California, San Diego (2009-2010)  
10/2008 Comprehensive Outstanding Scholarship, Tsinghua University  
06/2007 Outstanding Graduate Award, Huazhong University of Science & Technology  
09/2005 Academic Excellence Award, Huazhong University of Science & Technology

## Publications (80 papers, >7500 citations, h-index 47, Google Scholar - 12/2018).

1. Y. Yang, W. Gao\*, "Wearable pH sensing beyond the Nernst limit", *Nature Electronics*, 2018, 1, 580-581.

2. Yiran Yang, W. Gao<sup>\*</sup>, "Wearable and Flexible Electronics for Continuous Molecular Monitoring", *Chemical Society Review*, 2018, 10.1039/c7cs00730b.  
*Featured on Journal Front Cover.*
3. Y. Zhong, X. Tang, J. Li, Q. Lan, L. Min, C. Ren, X. Hu, R. M. Torrente-Rodríguez, W. Gao<sup>\*</sup>, Z. Yang, Nanozyme Tags Enabled Chemiluminescence Imaging Immunoassay for Multiplexed Cytokine Monitoring. *Chemical Communications*, 2018, 10.1039/C8CC07779G.
4. L.-C. Tai,<sup>§</sup> W. Gao<sup>§</sup>, M. Chao, M. Bariya, Q. P. Ngo, Z. Shahpar, H. Y. Y. Nyein, H. Park, J. Sun, Y. Jung, E. Wu, H. M. Fahad, D.-H. Lien, H. Ota, G. Cho, and A. Javey, "Methylxanthine drug monitoring with wearable sweat sensors", *Advanced Materials*, 2018, 1707442. [*§*] *Equal contribution.*
5. W. Gao, G. A. Brooks, D. C. Klonoff, "Wearable Physiological Systems and Technologies for Metabolic Monitoring", *Journal of Applied Physiology*, 2018, 124, 548-556.
6. H. Wu, W. Gao<sup>\*</sup>, Z. Yin, "Materials, Devices and Systems of Soft Bioelectronics for Precision Therapy", *Advanced Healthcare Materials*, 2017, 6, 1700017.  
*Highlighted in Advanced Science News, featured on Journal Cover.*
7. S. Emaminejad,<sup>§</sup> W. Gao<sup>§</sup>, E. Wu, Z. Davies, H. Y. Y. Nyein, S. Challa, S. Ryan, H. M. Fahad, K. Chen, Z. Shahpar, S. Talebi, C. Milla, A. Javey, R. W. Davis, "Autonomous Sweat Extraction and Analysis Using a Fully-Integrated Wearable Platform", *Proceedings of the National Academy of Sciences*, 2017, 114, 4624.  
*Highlighted in NBC News, Reuters and Daily Mail.*
8. T. Xu,<sup>§</sup> W. Gao<sup>§</sup>, L.-P. Xu, S. Wang, X. Zhang, "Fuel-Free Synthetic Micro/Nanomachines", *Advanced Materials* 2017, 29, 1603250.  
*Highlighted in Advanced Science News, featured on Journal Frontispiece.*
9. W. Gao<sup>§</sup>, S. Emaminejad,<sup>§</sup> H. Y. Y. Nyein, S. Challa, K. Chen, A. Peck, H. Fahad, H. Ota, S. Hiroshi, D. Kiriya, D. H. Lien, G. A. Brooks, R. W. Davis, A. Javey, "Fully-Integrated Wearable Sensor Arrays for Multiplexed In-Situ Perspiration Analysis", *Nature*, 2016, 529, 509-514.  
*Selected by Nature Publisher Group as 'Hot Topics' (one paper per week from all NPG journals).*  
*Highlighted in Nature, Science, The Wall Street Journal, New York Times, Time, Daily Mail, Yahoo!, The Times, LA Times, Newsweek, Forbes, Scientific American, IEEE Spectrum, MIT Technology Review, Chemical & Engineering News, VOA News, Fox News, Wired, Popular Science, Chemistry World, Science News, New Scientist, ScienceDaily, UC Berkeley News etc.*
10. W. Gao, H. Y. Y. Nyein, Z. Shahpar, L.-C. Tai, E. Wu, M. Bariya, H. Ota, H. M. Fahad, K. Chen and A. Javey, "Wearable Sweat Biosensors", *IEEE IEDM*, 2016, pp. 6.6.1-6.6.4. (Invited article)
11. W. Gao<sup>§</sup>, H. Y. Y. Nyein,<sup>§</sup> Z. Shahpar, H. M. Fahad, K. Chen, S. Emaminejad, Y. Gao, L.-C. Tai, H. Ota, E. Wu, J. Bullock, Y. Zeng, D.-H. Lien, A. Javey, "Wearable Microsensor Array for Multiplexed Heavy Metal Monitoring of Body Fluids", *ACS Sensors*, 2016, 1, 866.  
*Selected as ACS Editors' Choice (one paper per day from all ACS publications).*  
*Featured on Journal Cover.*
12. H. Y. Y. Nyein,<sup>§</sup> W. Gao<sup>§</sup>, Z. Shahpar, S. Emaminejad, K. Chen, H. M. Fahad, L.-C. Tai, H. Ota, Y. Gao, A. Javey, "A Wearable Electrochemical Platform for Non-Invasive Monitoring of Ca<sup>2+</sup> and pH", *ACS Nano*, 2016, 10, 7216.
13. W. Gao<sup>§</sup>, R. Dong,<sup>§</sup> S. Thamphiwatana,<sup>§</sup> J. Li, W. Gao, L. Zhang and J. Wang, "Artificial Micromotors in the Mouse's Stomach: A Step Towards In Vivo Use of Synthetic Motors", *ACS Nano*, 2015, 9, 117.  
*Selected as ACS Editors' Choice (one paper per day from all ACS publications).* *Highlighted in Nature, Fox News, BBC News, Daily Mail, Scientific American, Yahoo, Popular Science, New Scientist, Chemical & Engineering News, Science Daily etc.*
14. Z. Wu<sup>§</sup>, T. Li<sup>§</sup>, W. Gao<sup>§</sup>, T. Xu, B. Jurado-Sánchez, J. Li, W. Gao, Q. He, L. Zhang<sup>\*</sup>, and J. Wang<sup>\*</sup>, "RBC Membrane-Coated Biomimetic Motors for Effective Biotodetoxification", *Advanced Functional Materials*, 2015, 25, 3881. [*§*] *These authors contribute equally.*
15. W. Gao, X. Feng, A. Pei, C. R. Kane, R. Tam, C. Hennessy, J. Wang, "Bio-Inspired Helical Microswimmer based on Vascular Plant", *Nano Letters*, 2014, 14, 305.

- Highlighted in PhysOrg, ScienceDaily, Nanowerk, Gizmodo, Gizmag, la Repubblica (Italy) etc.*
16. J. Li,<sup>§</sup> W. Gao,<sup>§</sup> R. Dong, A. Pei, S. Sattayasamitsathit, J. Wang, "Nanomotor Lithography", *Nature Communications*, 2014, 5, 5026. [*§*] *These authors contribute equally.*  
*Highlighted in Nanowerk, ScienceDaily etc.*
  17. W. Gao, A. Pei, R. Dong, J. Wang, "Catalytic Iridium-Based Janus Micromotors Powered by Ultralow Levels of Chemical Fuels", *Journal of the American Chemical Society*, 2014, 136, 2276.
  18. W. Gao, J. Wang, "Synthetic Micro/Nanomotors in Drug Delivery", *Nanoscale*, 2014, 6, 10486.
  19. W. Gao, J. Wang, "The Environmental Impact of Micro/Nanomachines: A Review", *ACS Nano*, 2014, 8, 3170.  
*Highlighted in Nanowerk.*
  20. W. Gao, S. Sattayasamitsathit, J. Orozco, J. Wang, "Efficient Bubble Propulsion of Polymer-Based Microengines in Real-Life Environments", *Nanoscale*, 2013, 5, 8909. *'HOT' article.*
  21. W. Gao<sup>§</sup>, X. Feng<sup>§</sup>, A. Pei<sup>§</sup>, Y. Gu, J. Li, J. Wang, "Seawater-Driven Magnesium based Janus Micromotors for Environmental Remediation", *Nanoscale*, 2013, 5, 4696.  
*'HOT' article. Highlighted in Chemistry World.*
  22. W. Gao, A. Pei, X. Feng, C. Hennessy, J. Wang, "Organized Self-Assembly of Janus Micromotors with Hydrophobic Hemispheres", *Journal of the American Chemical Society*, 2013, 135, 998.
  23. W. Gao<sup>§</sup>, M. D'Agostin<sup>§</sup>, V. Garcia Gradilla<sup>§</sup>, J. Orozco, J. Wang, "Multi-Fuel Driven Janus Micromotors", *Small*, 2013, 9, 467.  
*"VIP" (Very Important Paper) by Wiley. Highlighted in Materials Views.*
  24. W. Gao, A. Pei, J. Wang, "Water-Driven Micromotors", *ACS Nano*, 2012, 6, 8432.  
*Highlighted in Nanowerk, IEEE Spectrum, and Chemical & Engineering News etc.*
  25. W. Gao, S. Sattayasamitsathit, A. Uygun, A. Pei, A. Ponedal, J. Wang, "Polymer-based Tubular Microbots: Role of Composition and Preparation", *Nanoscale*, 2012, 4, 2447.
  26. W. Gao, A. Uygun, J. Wang, "Hydrogen-Bubble Propelled Zinc-based Microrockets in Strongly Acidic Media", *Journal of the American Chemical Society*, 2011, 134, 897.  
*Highlighted in The Economist, Chemical & Engineering News, Popular Science, Discovery News, ScienceDaily, American Scientist, New Scientist, The Scientist etc.*
  27. W. Gao, S. Sattayasamitsathit, J. Wang, "Catalytically-Propelled Micro/Nanomotors: How Fast Can They Move?", *The Chemical Record*, 2012, 12, 224.
  28. W. Gao<sup>§</sup>, D. Kagan<sup>§</sup>, O. S. Pak, C. Clawson, S. Campuzano, E. Chuluun-Erdene, E. Shipton, E. E. Fullerton, L. Zhang, E. Lauga, J. Wang, "Cargo-Towing Fuel-Free Magnetic Nanoswimmers for Targeted Drug Delivery", *Small*, 2012, 8, 460.  
*"VIP" (Very Important Paper) by Wiley. Highlighted in Chemistry Views.*
  29. W. Gao, S. Sattayasamitsathit, J. Orozco, J. Wang, "Highly Efficient Catalytic Microengines: Template Electro-synthesis of Polyaniline-Platinum Microtubes", *Journal of the American Chemical Society*, 2011, 133, 11862.  
*Highlighted in Materials Views.*
  30. W. Gao, K. M. Manesh, J. Hua, S. Sattayasamitsathit, J. Wang, "Hybrid Nanomotor: A Catalytically/Magnetically Powered Adaptive Nanowire Swimmer", *Small*, 2011, 7, 2047.  
*"VIP" (Very Important Paper) by Wiley. Highlighted in Materials Views.*
  31. O. S. Pak<sup>§</sup>, W. Gao<sup>§</sup>, J. Wang, E. Lauga. "High-Speed Propulsion of Flexible Nanowire Motors: Theory and Experiments", *Soft Matter*, 2011, 7, 8169.  
*Highlighted in Chemistry World.*
  32. W. Gao, S. Sattayasamitsathit, K. M. Manesh, D. Weihs, J. Wang, "Magnetically-Powered Flexible Metal Nanowire Motors", *Journal of the American Chemical Society*, 2010, 132, 14403.  
*Highlighted in Science*, 2010, 330, 296-297.
  33. X. He, T. Xu, W. Gao, L.-P. Xu, T. Pan, X. Zhang, "Flexible Superwetable Tapes for On-Site Detection of Heavy Metals", *Analytical Chemistry*, 2018, 10.1021/acs.analchem.8b04536.

34. R. Dong, Y. Cai, Y. Yang, W. Gao, B. Ren, "Photocatalytic Micro-/Nanomotors: From Construction to Applications", *Accounts of Chemical Research*, 2018, 51, 1940-1947.
35. M. Bariya, Z. Shahpar, H. Park, J. Sun, Y. Jung, W. Gao, H. Y. Y. Nyein, T. S. Liaw, L.-C. Tai, Q. P. Ngo, M. Chao, Y. Zhao, M. Hettick, G. Cho, and A. Javey, Roll-to-Roll Gravure Printed Electrochemical Sensors for Wearable and Medical Devices. *ACS Nano*, 2018, 12, 6978-6987.
36. H. Y. Y. Nyein, L.-C. Tai, Q. P. Ngo, M. Chao, G. Zhang, W. Gao, M. Bariya, J. Bullock, H. Kim, H. M. Fahad, A. Javey, "A Wearable Microfluidic Sensing Patch for Dynamic Sweat Secretion Analysis", *ACS Sensors*, 2018, 3, 944.
37. T. Xu, Y. Song, W. Gao, T. Wu, L.-P. Xu, X. Zhang, and S. Wang, "Superwetable Electrochemical Biosensor toward Detection of Cancer Biomarkers", *ACS Sensors*, 2018, 3, 72-78.
38. H. Wang, Y. Liang, W. Gao, R. Dong, and C. Wang, "An Emulsion-Hydrogel Soft Motor Actuated by Thermal Stimulation", *ACS Applied Materials & Interfaces*, 2017, 9, 43211.
39. B. E.-F. de Ávila, P. Angsantikul, J. Li, W. Gao, L. Zhang, and J. Wang, "Micromotors Go In Vivo: from Test Tubes to Live Animals", *Advanced Functional Materials*, 2018, 28, 1705640.
40. Y. Gao, H. Ota, E. W. Schaler, K. Chen, A. Zhao, W. Gao, H. M. Fahad, Y. Leng, A. Zheng, F. Xiong, C. Zhang, L. Tai, P. Zhao, R. S. Fearing, A. Javey, "Wearable Microfluidic Diaphragm Pressure Sensor for Health and Tactile Touch Monitoring", *Advanced Materials*, 2017, 29, 1701985.  
*Featured on Journal Cover.*
41. H. Ota, M. Chao, Y. Gao, E. Wu, L.-C. Tai, K. Chen, Y. Matsuoka, K. Iwai, H. M. Fahad, W. Gao, H. Y. Y. Nyein, L. Lin, A. Javey. "3D Printed Earable Smart Devices for Real-time Detection of Core Body Temperature", *ACS Sensors*, 2017, 2, 990.  
*Selected as ACS Editors' Choice (one paper per day from all ACS publications).*  
*Highlighted in IEEE Spectrum.*
42. H. M. Fahad, H. Shiraki, M. Amani, C. Zhang, V. S. Hebbar, W. Gao, H. Ota, M. Hettick, D. Kiriya, Y.-Z. Chen, Y.-L. Chueh and A. Javey, "Room temperature multiplexed gas sensing using chemical-sensitive 3.5-nm-thin silicon transistors", *Science Advances*, 2017, 3, e1602557.  
*Highlighted in Nature Nanotechnology, IEEE Spectrum.*
43. J. Li, B. Esteban-Fernandez de Avila, W. Gao, L. Zhang, J. Wang, "Micro/nanorobots for biomedicine: delivery, surgery, sensing and detoxification", *Science Robotics*, 2017, 2, eaam6431.  
*Highlighted in IEEE Spectrum.*
44. Q. Zhang, R. Dong, Y. Wu, W. Gao, Z. He, and B. Ren, "Light-Driven Au-WO<sub>3</sub>@C Janus Micromotors for Rapid Photodegradation of Dye Pollutants", *ACS Applied Materials & Interfaces*, 2017, 9, 4674.
45. R. Dong, Y. Hu, Y. Wu, W. Gao, B. Ren, Q. Wang, Y. Cai, "Visible Light-Driven BiOI-Based Janus Micromotor in Pure Water", *Journal of the American Chemical Society*, 2017, 139, 1722-1725.
46. D. Kiriya, P. Lobaccaro, H. Y. Y. Nyein, P. Taheri, M. Hettick, H. Shiraki, C. M. Sutter-Fella, P. Zhao, W. Gao, R. Maboudian, Joel W. Ager, A. Javey, "General Thermal Texturization Process of MoS<sub>2</sub> for Efficient Electrocatalytic Hydrogen Evolution Reaction", *Nano Letters*, 2016, 16, 4047.
47. K. Chen, W. Gao, S. Emaminejad, D. Kiriya, H. Ota, H. Y. Nyein, A. Javey, "Printed Carbon Nanotube-Based Flexible Electronics and Systems", *Advanced Materials*, 2016, 28, 4397.  
*Featured on Journal Frontispiece.*
48. H. Ota, S. Emaminejad, Y. Gao, A. Zhao, E. Wu, S. Challa, K. Chen, H. M. Fahad, A. K. Jha, D. Kiriya, W. Gao, H. Shiraki, K. Morioka, A. R. Ferguson, K. E. Healy, R. W. Davis, A. Javey, "Application of 3D Printing for Smart Objects with Embedded Electronic Sensors and Systems", *Advanced Materials Technologies*, 2016, 1, 1600013.  
*Featured on Journal Cover.*
49. R. Dong, Q. Zhang, W. Gao, A. Pei, B. Ren, "Highly Efficient Light-driven TiO<sub>2</sub>-Au Janus Micromotors", *ACS Nano*, 2016, 10, 839.
50. Z. Wu, T. Si, W. Gao, Y. Wu, J. Wang, Q. He, "Superfast Near-Infrared Light-Driven Polymer Multilayer Rockets", *Small*, 2016, 12, 577.  
*Featured on Journal Cover.*

51. R. Dong, J. Li, I. Rozen, B. Ezhilan, T. Xu, C. Christianson, W. Gao, D. Saintillan, B. Ren, J. Wang, "Vapor-Driven Propulsion of Catalytic Micromotors", *Scientific Reports*, 2015, 5, 13226.
52. W. Zhu, J. Li, Y. J. Leong, I. Rozen, X. Qu, R. Dong, Z. Wu, W. Gao, P. H. Chung, J. Wang, and Shaochen Chen\*, "3D-Printed Artificial Micro-Fish", *Advanced Materials*, 2015, 27, 4411.  
*Featured on Journal Cover. Highlighted in The Washington Post, Forbes, Fortune, Discovery News, Wired, BBC Focus, Popular Science, Science Daily etc.*
53. S. Cinti, G. Valdés-Ramírez, W. Gao, J. Li, G. Palleschi, J. Wang, "Microengine-Assisted Electrochemical Measurements at Printable Sensor Strips", *Chemical Communications*, 2015, 51, 8668.
54. T. Xu, F. Soto, W. Gao, R. Dong, V. Garcia-Gradilla, E. Magana, X. Zhang, J. Wang, "Reversible Swarming and Separation of Self-propelled Chemically-Powered Nanomotors under Acoustic Fields", *Journal of the American Chemical Society*, 2015, 37, 2163.
55. B. Ezhilan, W. Gao, A. Pei, I. Rozen, R. Dong, B. Jurado-Sanchez, J. Wang, D. Saintillan, "Motion-based Threat Detection using Microparticles: Experiments and Numerical Simulations", *Nanoscale*, 2015, 7, 7833.
56. B. Jurado-Sánchez, S. Sattayasamitsathit, W. Gao, L. Santos, Y. Fedorak, V. V. Singh, J. Orozco, M. Galarnyk, J. Wang, "Self-Propelled Activated-Carbon Janus Micromotors for Efficient Water Purification", *Small*, 2015, 11, 499.
57. Z. Wu, T. Li, J. Li, W. Gao, T. Xu, C. Christianson, W. Gao, M. Galarnyk, Q. He, L. Zhang, J. Wang, "Turning Erythrocytes to Functional Micromotors", *ACS Nano*, 2014, 8, 12041.
58. J. Li, V. V. Singh, S. Sattayasamitsathit, J. Orozco, K. Kaufmann, R. Dong, W. Gao, B. Jurado-Sanchez, Y. Fedorak, J. Wang, "Water-Driven Micromotors for Rapid Photocatalytic Degradation of Biological and Chemical Warfare Agents", *ACS Nano*, 2014, 8, 11118.  
*Highlighted in BBC News, ScienceDaily, Nanowerk etc.*
59. T. Xu, F. Soto, W. Gao, V. Garcia-Gradilla, J. Li, X. Zhang, J. Wang, "Ultrasound-Modulated Bubble Propulsion of Chemically-Powered Microengines", *Journal of the American Chemical Society*, 2014, 136, 8552.
60. J. Orozco, B. Jurado-Sánchez, G. Wagner, W. Gao, R. Vazquez-Duhalt, S. Sattayasamitsathit, M. Galarnyk, A. Cortés, D. Saintillan, J. Wang, "Bubble-Propelled Micromotors for Enhanced Transport of Passive Tracers", *Langmuir*, 2014, 30, 5082.
61. S. Sattayasamitsathit, H. Kou, W. Gao, W. Thavarajah, K. Kaufmann, L. Zhang, J. Wang, "Fully-Loaded Micromotors for Combinatorial Delivery and Autonomous Release of Cargoes", *Small*, 2014, 10, 2830.
62. J. Li, S. Sattayasamitsathit, R. Dong, W. Gao, R. Tam, X. Feng, S. Ai, J. Wang, "Template Electrosynthesis of Tailored-Made Helical Nanoswimmers", *Nanoscale*, 2014, 6, 9415-9420. *'HOT' article.*
63. E. S. Olson, J. Orozco, Z. Wu, C. D. Malone, B. Ha Yi, W. Gao, M. Eghtedari, J. Wang, R. F. Mattrey, "Toward *In Vivo* Detection of Hydrogen Peroxide with Ultrasound Molecular Imaging", *Biomaterials*, 2013, 34, 8918.
64. V. Garcia-Gradilla, J. Orozco, S. Sattayasamitsathit, F. Soto, F. Kuralay, A. Pourazary, A. Katzenberg, W. Gao, Y. Shen, J. Wang, "Functionalized Ultrasound-Propelled Magnetically-Guided Nanomotors: Towards Practical Biomedical Applications", *ACS Nano*, 2013, 7, 9232.  
*Highlighted in ACS Nano, The Guardian (UK).*
65. J. Li, J. Zhang, W. Gao, G. Huang, Z. Di, R. Liu, J. Wang, Y. Mei, "Dry-Released Nanotubes and Nanoengines by Particle-Assisted Rolling", *Advanced Materials*, 2013, 25, 3715.
66. Y. Gu, S. Sattayasamitsathit, K. Kaufmann, R. Vazquez-Duhalt, W. Gao, J. Wang, "Self-Propelled Chemically-Powered Plant-Tissue Biomotors", *Chemical Communications*, 2013, 49, 7307.  
*Highlighted in Chemistry World.*
67. J. Orozco, A. Cortés, G. Cheng, S. Sattayasamitsathit, W. Gao, X. Feng, Y. Shen, J. Wang, "Molecularly Imprinted Polymer-Based Catalytic Micromotors for Selective Protein Transport", *Journal of the American Chemical Society*, 2013, 135, 5336.
68. J. Orozco, V. García-Gradilla, M. D'Agostino, W. Gao, A. Cortés, J. Wang, "Artificial Enzyme-Powered Microfish for Water-Quality Testing", *ACS Nano*, 2013, 7, 818.  
*Highlighted in Nanowerk.*

69. K. M. Manesh, S. Campuzano, W. Gao, M. J. Lobo-Castañón, I. Shitanda, K. Kiantaj, J. Wang, “Nanomotor-Based Biocatalytic Patterning of Helical Metal Microstructures”, *Nanoscale*, 2013, 5, 1310.
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*‘HOT’ article. Highlighted in RSC Blog.*
71. F. Kuralay, S. Sattayasamitsathit, W. Gao, A. Uygun, A. Katzenberg, J. Wang, “Self-Propelled Carbohydrate-Sensitive Microtransporters with ‘Built-In’ Boronic-Acid Recognition for Isolating Sugars and Cells”, *Journal of the American Chemical Society*, 2012, 134, 15217.
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*Highlighted in Nanowerk.*
73. M. Guix, J. Orozco, M. Garcia, W. Gao, S. Sattayasamitsathit, A. Merkoci, A. Escarpa, J. Wang, “Superhydrophobic Alkanethiol-Coated Microsubmarines for Effective Removal of Oil”, *ACS Nano*, 2012, 6, 4445.  
*Highlighted in Chemical & Engineering News, BBC News, The Engineer, Wired, Popular Science and Discovery News etc.*
74. S. Sattayasamitsathit, A. M. O’Mahony, X. Xiao, S. M. Brozik, C. M. Washburn, D. R. Wheeler, W. Gao, S. Minter, J. Cha, D. B. Burckel, R. Polsky, J. Wang, “Highly Ordered Tailored Three-Dimensional Hierarchical Nano/Microporous Gold-Carbon Architectures”, *Journal of Materials Chemistry*, 2012, 22, 11950.
75. S. Campuzano, J. Orozco, D. Kagan, M. Guix, W. Gao, S. Sattayasamitsathit, J. C. Claussen, A. Merkoçi, J. Wang, “Bacterial Isolation by Lectin-Modified Microengines”, *Nano Letters*, 2012, 12, 396.  
*Highlighted in Nanowerk.*
76. J. Orozco, S. Campuzano, D. Kagan, M. Zhou, W. Gao, J. Wang, “Dynamic Isolation and Unloading of Target Proteins by Aptamer-Modified Microtransporters”, *Analytical Chemistry*, 2011, 83, 7962.
77. S. Sattayasamitsathit, W. Gao, P. Calvo-Marzal, K. M. Manesh, J. Wang, “Simplified Cost-Effective Preparation of High Performance Pt-Ag Nanowire Motors”, *ChemPhysChem*, 2010, 11, 2802.
78. Y. Dong, W. Gao, Q. Zhou, Y. Zheng, Z. You, “Characterization of the Gas Sensors based on Polymer-Coated Resonant Microcantilevers for the Detection of Volatile Organic Compounds”, *Analytica Chimica Acta*, 2010, 671, 85.
79. Y. Dong, W. Gao, Y. Zheng, Z. You, “Electrothermal Driving Microcantilever Resonator as a Platform for Chemical Gas Sensing”, *Tsinghua Science and Technology*, 2010, 15, 481.
80. Y. Dong, W. Gao, Z. You, “Direct Bonding SOI Wafer Based Cantilever Resonator for Trace Gas Sensor Application”, *IEEE NEMS*, 2009, 134.

## Patents

1. “Autonomous Sweat Extraction and Analysis Using a Fully-Integrated Wearable Platform”, S. Emaminejad, C. Milla, W. Gao, A. Javey, R. W. Davis, 2016, US Patent App. 15/700,119.
2. “Wearable Sensor Arrays for In-Situ Body Fluid Analysis”, W. Gao, S. Emaminejad, R. W. Davis, A. Javey, 2015, PCT/US2016/053988.
3. “Nanomotor Photolithography”, J. Wang, J. Li, W. Gao, 2014, patent filed.
4. “Method and System for In Vivo Hydrogen Peroxide Detection with Ultrasound”, R. F. Mattrey, Z. Wu, E. S. Olsen, J. Wang, W. Gao, US 9,713,459.
5. “Membrane Template Synthesis of Microtube Engines”, J. Wang, W. Gao, S. Sattayasamitsathit, US 9,982,356.
6. “Electronic Nose Used for Food Safety Monitoring”, Y. Dong, Z. You, W. Gao, Y. Zheng, CN 101788440.

## Professional Activities

- Member of *Sigma Xi, ACS, MRS, AIChE, NYAS and IEEE*.
- Member of Editorial Board of International Journals including *Micromachines, Sensors*.

- Proposal Reviewer for *U. S. Air Force Office of Scientific Research, U.S. National Institute of Standards and Technology (NIST), European Research Council, Ontario Research Fund, AAAS/MTI, The Netherlands Organisation for Scientific Research.*
- Independent Reviewer of over 65 International Journals, including:  
*Science, Nature Biotechnology, Nature Electronics, Nature Communications, Science Translational Medicine, Science Advances, Science Robotics, Proceedings of the National Academy of Sciences, Journal of the American Chemical Society, Angewandte Chemie, Accounts of Chemical Research, Nano Letters, ACS Nano, Advanced Materials, Advanced Functional Materials, Advanced Healthcare Materials, Advanced Science, Advanced Biosystems, Microsystems & Nanoengineering, Energy & Environmental Science, Nano Energy, Small, Chemistry - A European Journal, Scientific Reports, Analytical Chemistry, ACS Applied Materials & Interfaces, ACS Sensors, Langmuir, ACS Biomaterials Science & Engineering, Chemical Science, ChemSusChem, ChemCatChem, ChemElectroChem, The Chemical Record, Chemical Communications, Nanoscale, Journal of Materials Chemistry A, B, C, Lab on a Chip, Soft Matter, Analyst, RSC Advances, Physical Chemistry Chemical Physics, New Journal of Chemistry, Advanced Drug Delivery Reviews, Sensors and Actuators B: Chemical, Talanta, Electroanalysis, ChemistrySelect, Materials Science & Engineering - R: Reports, Journal of Physics and Chemistry of Solids, Applied Physics Letters, Journal of Applied Physics, AIP Advances, Applied Materials Today, Sensors, IEEE Sensors, IEEE Transactions on Electron Devices, IEEE Transactions on NanoBioscience, IEEE Transactions on Biomedical Engineering, The Robotics and Biomimetics, Journal of Fluids and Structures, The Journal of The Electrochemical Society, ECS Journal of Solid State Science and Technology, Review of Scientific Instruments.*