

PAUL K. WRIGHT

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Professional Preparation

University of Birmingham, England

Metallurgy

B.Sc. 1968

University of Birmingham, England

Metallurgy

Ph.D. 1971

Appointments

2013-Present *Director and Professor*, Berkeley Energy & Climate Institute (BECI)

2007-Present *Member*, National Academy of Engineering

2006-2013 *Director*, Center for Information Technology Research in the Interest of Society (CITRIS)

1999-Present *Co-Director*, Berkeley Manufacturing Institute, University of California at Berkeley

1999-Present *Co-Director*, Berkeley Wireless Research Center

1991-Present *A. Martin Berlin Professor of Mechanical Engineering*, University of California at Berkeley

1987-1991 *Professor of Computer Science and Director of the Robotics and Manufacturing Research Laboratory*, Courant Institute of Mathematical Sciences, New York University

1979-1987 *Professor of Mechanical Engineering and The Robotics Institute*, Carnegie-Mellon University, Pittsburgh, PA

1978 *Research Associate in Physics*, Cavendish Laboratory, University of Cambridge, England

1975-1978 *Senior Lecturer*, Dept. of Mech. Eng., Univ. of Auckland, New Zealand

1972-1975 *Research Engineer*, Dept. of Sci. and Ind. Res., Auckland, New Zealand

- *Design, manufacturing and energy systems* – Wright works in a broad field of technology that spans product design, mechanisms, robotics, sensors, rapid-prototyping, wireless sensor networks, IT systems, and automated manufacturing & inspection of products. Contributions to this field have resulted in his being elected a Member of the National Academy of Engineering (NAE); a Fellow of the Society of Manufacturing Engineers (SME); a Fellow of the American Soc. of Mechanical Engineers (ASME).
- *Energy Scavenging and Storage to support Wireless Sensor Networks*: - was first funded by NSF (1999), and is now by Siemens and the CEC - California Energy Commission (2003-present). In the CEC funded research with Prof. Arens, Rabaey, Culler, Pister, Evans, White and Sanders, the larger societal goal is to reduce electricity use, especially during peak-loads, in buildings. The research includes the deployment of low-power Wireless Sensor Networks (WSNs) to monitor and control temperatures and comfort in buildings. Yet, WSNs are still hampered by the use of replaceable batteries. Dr. Wright's ongoing work thus focuses on: i) vibration-scavenging devices at the MEMS scale; ii) pneumatic *dispenser-printing* of storage
- *Open-architecture Manufacturing, Sensors, and Internet-based Manufacturing*: - was funded by NSF and other agencies throughout the 1980s. Dr. Wright's group is credited in 1988 with the first Internet-based CAD/CAM system between a designer at CMU and a sensor-based open-architecture CNC machining center at the Courant Institute at NYU. From 1991, at Berkeley, he led (with Professor Sequin from Computer Science) the CyberCut project. In the

Recent Publications

1. L.M. Miller, A.D. Elliott, P.D. Mitcheson, E. Halvorsen, I. Paprotny and P.K. Wright, "Maximum Effectiveness of Piezoelectric Energy Harvesters When Coupled to Interface Circuits," *IEEE Sensors Journal*, Accepted for publication, March 10th 2016.
2. J. Keist, C. Orme, P.K. Wright and J.W. Evans, "An *in situ* AFM Study of the Evolution of Surface Roughness for Zinc Electrodeposition within an Imidazolium Based Ionic Liquid Electrolyte," *Electrochimica Acta*, Volume 152, 2015, pp.161 - 171.
3. Z. Wang, R. Winslow, D. Madan, J.W. Evans, P.K. Wright, M. Keif and X. Rong, "Development of MnO₂ Cathode Inks for Flexographically Printed Rechargeable Zinc-based Battery," *Journal of Power Sources*, Volume 268, 2014, pp. 246 - 254.
4. Paprotny, I., C.G. Levey, P.K. Wright, and B.R. Donald, "Turning-rate Selective Control: A New Method for Independent Control of Stress-engineered MEMS Microrobots." *Robotics: Science and Systems VIII*, P. Newman, N. Roy, S. Shrinivasa (Eds.), 2014, pp. 321 – 328.
5. P.K. Wright, "Cyber-physical Product Manufacturing," *Society of Manufacturing Engineers – Manufacturing Letters*, 2014, Volume 2, (2), pp. 49 – 53.
6. D. Madan, Z. Wang, A. Chen, R. Winslow, P. K. Wright, J. W. Evans, "Dispenser Printed Circular Thermoelectric Devices using Bi and Bi_{0.5} Sb_{1.5} Te₃," *Applied Physics Letters* Volume 104, pp. 013902. (2014).
7. F.L. Burghardt, A.C. Waterbury, I. Paprotny, L.M. Miller, P. Minor, R. Send, Q. Xu, R.M. White, and P.K. Wright, "A Design Methodology for Energy Harvesting: With a Case Study on the Structured Development of a System to Power a Condition Monitoring Unit," *Energy Harvesting and Systems*, 2014, Vol. 1 (1/2), pp. 101 – 112.
8. B. Hartmann and P.K. Wright, "Designing Bespoke Interactive Devices," *Computer - IEEE Computer Society*, August 2013, Vol.46, (8), pp. 85 – 89.
9. D. Madan, Z. Wang, A. Chen, P. K. Wright and J, W. Evans, "High Performance Dispenser Printed MA p-type Bi_{0.5} Sb_{0.5} Te₃ Flexible Thermoelectric Generators for Powering Wireless Sensor Networks," *ACS Applied Materials and Interfaces* Volume 5, 2013, 11872-11876.
10. Q. Xu, I. Paprotny, M. Seidel, R.M. White and P.K. Wright, "Stick-on Piezoelectromagnetic Current Sensing AC Current Monitoring of Circuit Breaker Panels," *IEEE Sensors Journal*, March 2013, Volume 13, No. 3, pp. 1055 - 1064
11. I. Paprotny, Q. Xu, W.W. Chan, R.M. White and P.K. Wright, "Electromechanical Energy Harvesting from Current-Carrying Conductors," *IEEE Sensors Journal*, January 2013, Volume 13, No. 1, pp.190 – 201.
12. L.M. Miller, P. Pillatsch, E. Halvorsen, P.K. Wright, E.M. Yeatman, and A.S. Holmes, "Experimental passive self-tuning behavior of a beam resonator with sliding proof mass," *Journal of Sound and Vibration*, December 2013, Volume 332, No. 26, pp. 7142 – 7152.