**Kensall D. Wise, Fellow, IEEE,**
Director, Center for Wireless Integrated MicroSystems
J. Reid and Polly Anderson Professor of Manufacturing Technology
Department of Electrical Engineering and Computer Science
UNIVERSITY OF MICHIGAN
1301 Beal Avenue
Ann Arbor, MI, 48109-2122
Phone: (734) 764-3346
Fax: (734) 763-9324
E-mail: wise@eecs.umich.edu

**Role in the Center: Co-Investigator**

**Areas of Research:** Integrated circuits and related process technology, integrated solid-state sensors

## A. PROFESSIONAL PREPARATION

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| **Purdue University** | Electrical Engineering B.S., 1963 |
| **Stanford University** | Electrical Engineering M.S., 1964 |
| **Stanford University** | Electrical Engineering Ph.D., 1969 |

## B. APPOINTMENTS

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|---|---|
| **Professor,** EECS Department, University of Michigan | 1982-present |
| **Associate Professor,** EECS Department, University of Michigan | 1978-1982 |
| **Assistant Professor,** EECS Department, University of Michigan | 1974-1978 |
| **J. Reid and Polly Anderson Professor of Manufacturing Technology,** | 1993-present |
| **Director,** Solid-State Electronics Laboratory, | 1979-1987 |
| **Director,** Center for Integrated Sensors and Circuits, | 1987-1998 |
| **Director,** SRC Program in Automated Semiconductor Manufacturing, | 1984-1998 |
| **Director,** Center for Integrated MicroSystems, | 1998-2000 |
| **Associate Dean for Research,** College of Engineering, | 1999-2000 |
| **Director,** NSF ERC in Wireless Integrated MicroSystems, | 2000-present |

## C. SYNERGISTIC ACTIVITIES

Professor Wise has over 40 years of experience in solid-state physics devices, modeling, and fabrication techniques, and is leading a large research group and an NSF research center. Over the past 30 years, he has graduated 50 Ph.D. and numerous M.S. students. He has served as the Principal Investigator on many projects sponsored by ARO, ONR, ARL, NSF, DARPA, NASA, JPL and many industries. He has published many book chapters and more than 250 papers in refereed journals. He has also had more than 250 papers and invited presentations in many national and international conferences and symposia on similar subjects. Professor Wise is a Fellow of IEEE, Associate Dean for Research at the College of Engineering, and Director of the NSF ERC in Wireless Integrated MicroSystems.

His recent professional activities include: Member, Program Committee, International Conference on Solid-State Sensors and Actuators, 1987, 1989, 1991, 1993, 1995; Chairman, SRC University Advisory Committee, 1989-1991; General Chairman, 1997 IEEE International Conference on Solid-State Sensors and Actuators (Transducers ’97); Senior Editor, IEEE Journal of Microelectromechanical Systems, 1998-2000; Member, Editorial Board, Proceedings of the IEEE, 1999-present.

Some of his recent awards are: Stephen S. Attwood Award for Excellence in Engineering, University of Michigan College of Engineering, 1992; Distinguished Faculty Achievement Award, The University of Michigan, 1995; Columbus Prize ”for an individual American who has improved, or is attempting to improve, the world through ingenuity and innovation,”; elected to the National Academy of Engineering of the United States of America ”for sensors and microelectromechanical systems,” 1998; 1999 IEEE Solid-State Circuits Field Award ”For pioneering contributions to the development of solid-state sensors, circuits, and integrated sensing systems;”.

**D. RELATED PUBLICATIONS**


1. K. D. Wise, ed., "Integrated Sensors, Microactuators, and Microsystems (MEMS)," Special Issue, Proc. IEEE, New York: Inst. of Electrical and Electronics Engineers, August 1998.
2. S. Amimoto, A. J. Mason, and K. D. Wise, MEMS-Based Sensing Systems: Architecture, Design, and Implementation, in H. Helvajian, ed., Microengineering for Aerospace Systems. Los Angeles: The Aerospace Press: 1999.
3. E. T. Zellers, W. Steinecker, G. R. Lambertus, M. Agah, C.-Lu, H. K. L. Chan, J. A. Potkay, et al., and K. D. Wise, "A Versatile MEMS Gas Chromatograph for Determinations of Environmental Vapor Mixtures," (Invited), Digest North American Sensor, Actuator, and Microsystems Workshop, pp. 61-66, June 2004.
4. M. Agah, G. R. Lambertus, R. D. Sacks, and K. D. Wise, "High-Speed MEMS-based Gas Chromatography," Digest IEEE Int. Electron Devices Meeting, San Francisco, pp. 27-30, December 2004.
5. J. A. Potkay and K. D. Wise, "An Electrostatically Latching Thermopneumatic Microvalve with Closed-Loop Position Sensing," IEEE Int. Conf, on MicroElectroMechanical Systems, Miami, pp. 415-418, January 2005.
6. M. Agah and K. D. Wise, "A Fully-Dry PECVD-Oxynitride Process for MicroGC Column Fabrication," IEEE Int. Conf. on MicroElectroMechanical Systems, Miami, pp. 774-777, January 2005.
7. A. DeHennis and K. D. Wise, "A Wireless Microsystem for the Remote Sensing of Pressure, Temperature, and Relative Humidity," IEEE J. Microelectromech. Systems, pp. 12-22, February 2005.
8. M. Agah, J. Potkay, A. Elstro, G. R. Lambertus, M. Kaviany, R. Sacks, and K. D. Wise, "High-Performance Temperature-Programmed Microfabricated Gas Chromatography Columns," IEEE J. Microelectromech. Systems, 14, pp. 1039-1050, October 2005.
9. M. Agah and K. D. Wise, "PECVD-Oxynitride Gas Chromatographic Columns," Digest IEEE Electron Devices Meeting, Washington, DC, pp. 311-314, December 2005.
10. K. D. Wise, "Wireless Integrated Microsystems: Coming Revolution in the Gathering of Information," (Invited Keynote), Digest NSTI Nanotech'06, 3, Boston, MA, pp. 455-458, May 2006.
11. K. Baek, Y. Li, M. N. Gulari, and K. D. Wise, "A Pneumatically-Actuated Microvalve for Spatially-Selective Chemical Delivery," Digest North American Conf. on Solid-State Sensors, Actuators, and Microsystems, Hilton Head, S.C., pp. 155-158, June 2006.
12. J. A. Potkay, G. R. Lambertus, R. D. Sacks, and K. D. Wise, "A Low-Power Pressure- and Temperature-Programmable GC Column," Digest North American Conf. on Solid-State Sensors, Actuators, and Microsystems, Hilton Head, S.C., pp. 144-147, June 2006.
13. D. F. Lemmerhirt and K. D. Wise, "Chip-Scale Integration of Data-Gathering Microsystems," Proc. IEEE, pp. 1138-1159, June 2006.


**E. RELATED PATENTS**


1. A. V. Chavan and K. D. Wise, "A Silicon Micromachined Capacitive Pressure Sensor and Method of Manufacture." United States Patent 6,109,113. August 29, 2000.
2. L. Lin, Y.-T. Cheng, K. Najafi and K. D. Wise, "Process for Making Microstructures and Microstructures Made Thereby," US patent, No. 6,232,150, May 15, 2001.
3. A. V. Chavan and K. D. Wise, "Monolithic Fully-Integrated Vacuum-Sealed BiCMOS Pressure Sensor." United States Patent 6,713,828 B1, March 30, 2004.
4. K. D. Wise, R. Sacks, K. T. Beach, J. A. Potkay, and M. Agah, "Separation Column Assembly for a MicroGas Chromatograph and the Like." United States Patent 6,838,640, January 4, 2005.
5. P. Chang-Chien and K. D. Wise, "Method and System for Locally Sealing a Vacuum Microcavity, Methods and Systems for Monitoring and Controlling Pressure, and Method and System for Trimming Resonant Frequency of a Microstructure Therein." United States Patent 7,004,015, February 28, 2006.