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James Richard Shealy

Emeritus

Electrical and Computer Engineering

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Biography

After earning his doctorate, Shealy held a dual appointment at Cornell as a research associate and at General Electric as a principal staff scientist. In 1983 he co-founded, and has chaired, the biennial international workshop on OMVPE (organometallic vapor phase epitaxy), a technique used for growing semiconductor crystals. He joined the faculty in 1987 and is active in developing Cornell's laboratory research in compound semiconductor materials and related graduate courses. At Cornell he is associated with the National Nanofabrication Facility, Joint Services Electronics Program, and the DARPA Optoelectronics Technology Center.

Research Interests

Compound Semiconductor Materials for Ultra-High-Speed Transistors (Joint Services Electronics Program)

Advanced Crystal-Growth Techniques for New Semiconductors Using OMVPE (Strategic Defense Initiative Organization-Innovative Science and Technology)

Selective Deposition of Optoelectronic Materials with OMVPE (DARPA Optoelectronic Materials Center)

- [Semiconductor Physics and Devices](#)
- [Solid State, Electronics, Optoelectronics and MEMs](#)

Teaching Interests

Silicon Device Fundamentals, Micro theory Devices and applications

Selected Publications

- Harvard, E., R. Brown, James Richard Shealy. 2011. "Performance of AlGaIn/GaN High-Electron Mobility Transistors with AISIN Passivation." *IEEE Transactions on Electron Devices* 59 (1): 87-93.
- Harvard, E., R. Brown, James Richard Shealy. 2010. "Performance of AlGaIn/GaN High-Electron Mobility Transistors with AISIN Passivation." *IEEE Transactions on Electron Devices* 58 (1): 87-94.
- Brannick, A., N. A. Zakhleniuk, B. K. Ridley, James Richard Shealy, W. J. Schaff, L. F. Eastman. 2009. "Influence of Field Plate on the Transient Operation of the AlGaIn/GaN HEMT." *IEEE Electron Device Letters* 30 (5): 436-438.
- Brannick, A., N. A. Zakhleniuk, B. K. Ridley, L. F. Eastman, James Richard Shealy, W. J. Schaff. 2009. "Hydrodynamic Simulation of Surface Traps in the AlGaIn/GaN HEMT." *Microelectronics Journal* 40 (3): 410-412.
- Shealy, James Richard, J. L. Wang, R. Brown. 2008. "Methodology for Small-signal Model Extraction of AlGaInHEMTs." *IEEE Transactions on Electron Devices* 55 (7): 1603-1613.

Education

B.S. (Electrical and Computer Engineering), North Carolina State, 1978

M.S. (Electrical and Computer Engineering), Rensselaer Polytechnic Institute, 1980

Ph.D. (Electrical and Computer Engineering), Cornell University, 1983

