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**Michael Shur**

PATRICIA W. AND C. SHELDON ROBERTS PROFESSOR
ECSE and Physics
ACTING DIRECTOR, CENTER FOR INTEGRATED ELECTRONICS
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**Degrees:**
MSEE (with honors), St. Petersburg Electrotechnical Institute
Ph.D., Physics, A. F. Ioffe Institute of Physics and Technology,
Dr. Phys. Math. Sc. A. F. Ioffe Institute of Physics and Technology, 1992
Honorary Doctorate, St. Petersburg Technical University, 1994

**Career Highlights:**
Michael Shur joined RPI in 1996. He has held research or faculty positions at the University of Virginia as the John Money Professor and the Director of Applied Electrophysics Laboratories, A.F. Ioffe Institute, Cornell, and the University of Minnesota. He is Fellow of IEEE, IET,APS, ECS, AAAS, and Vice-President for publications of IEEE Sensor Council. He received the van der Ziel Award from the International Semiconductor Device Research Symposium in 1999, the Senior Humboldt Research Award in 2002, IEEE Donald Fink Best Paper Award in 2007, and IEEE Kirchmayer Award in 2007.

**Research Areas:**
**Solid State Devices**
Shur's work with plasma wave excitation in submicron field effect transistors (FET) and related device structures should allow his lab to develop a new generation of solid-state terahertz (THz) tunable devices that will support numerous applications in biotechnology, microelectronics, and defense. His research has shown that a short channel field effect transistor (FET) has a resonance response to electromagnetic radiation at the plasma oscillation frequencies of the two dimensional electrons in the device. The devices which use this resonance response should operate at much higher frequencies than conventional, transit-time limited devices — in the terahertz range — since the plasma waves propagate much faster than electrons. Recently, his team reported on a resonant detector operating in the terahertz range using an AlGaAs/GaAs 0.15 micron gate FET.

**Recent Publications:**

1. Venkata Chivukula, Dmitry Veksler, Kai Liu, Michael Shur,"Collaborative Remote Experimentation Lab for Learning Disabled Students," Proc. ASEE Northeast Meeting, Bridgeport, 2009, pp. 1-4.
2. G. Tamulaitis, J. Mickevičius, D. Dobrovolskas, E. Kuokštis, M. Shur, M. Shatalov, and R. Gaška, Spatially-resolved photoluminescence study of high indium content InGaN LED structures
3. A. Pinos, S. Marcinkevičius, J. Yang, Y. Bilenko, M. Shatalov, R. Gaska, and M. S. Shur, Aging of AlGaN quantum well light emitting diode studied by scanning near-field optical spectroscopy< Appl. Phys. Lett.
4. M. Shur and R. Gaska, Device and method for managing radiation, US Patent Application 20060081889, April 20 (2006)
5. Jianyu Deng, Jinwei Yang, Xuhong Hu, Remis Gaska, Bilal Khan, Grigory Simin and Michael Shur, Insertion Loss and Linearity of III-Nitride Microwave Switches, physica status solidi
6. M. Shur and R. Gaska, Deep Ultraviolet Light Emitting Diodes (INVITED), IEEE Trans. ED, to be published
7. G. Simin, B. Khan, J. Wang, A. Koudymov, M. Gaevski, R. Jain, J. Yang, X. Hu, R. Gaska, R.; M. Shur, Multigate GaN RF Switches With Capacitively Coupled Contacts, IEEE Electron Device Letters, Volume 30, Issue 9, Sept. 2009 Page(s):895 - 897
8. J. Wang, B. Khan, A. Sattu, J. Yang, R. Gaska, M. Shur, and G. Simin, Microwave Switching using Gateless III-N Devices with Capacitively-Coupled Contacts
9. Y. Bilenko, A. Lunev, I. Shturm, L. Shturm, J. Yang, W. Sun, M. Shatalov, J. Deng, Xuhong Hu, A. Sattu, M. Shur, R. Gaska, High Power Large Area Deep UV LEDs, in IMS Abstracts, 2008*

10. V. S. Chivukula, D. Čiplys, Michael S. Shur, J. Yang, and R. Gaska, Surface Acoustic Wave Interdigital Transducer Response to Deep UV illumination in AlGaN/sapphire, in Proceedings of Ultrasound Symposium, Rome (2009)
11. V. Liuolia, S. Marcinkevičius, A. Pinos, R. Gaska, and M. S. Shur, Dynamics of carrier recombination and localization in AlGaN quantum wells studied by time-resolved transmission spectroscopy, Appl. Phys. Lett. 95, 091910 (2009); also re-published in September 14, 2009 issue of Virtual Journal of Nanoscale Science & Technology.
12. Venkata S. Chivukula, Daumantas Čiplys, Romualdas Rimeika, and Michael S. Shur, Impact of photocapacitance on phase response of GaN/sapphire SAW UV sensor
13. Venkata S. Chivukula, Daumantas Čiplys, Romualdas Rimeika, Michael S. Shur, Fellow IEEE, Jinwei Yang, and Remis Gaska UV sensor, IEEE Sensors Journal
Muravjov, A. V.; Veksler, D. B.; Popov, V. V.; Shur, M. S.; Pala, N.; Hu, X.; Gaska, R.; Saxena, H.; Peale, R. E., Lasers and Electro-Optics 2009 and the European Quantum Electronics Conference. CLEO Europe - EQEC 2009. European Conference on, 14-19 June 2009 Page(s):1 - 1
14. R. Gaska, J. Zhang, and M. Shur, Nitride-based light emitting heterostructure, US patent 7,537,950, May 26, 2009
15. V. Chivukula, M. Shur, and K. Liu, Remote Experimentation Lab for Learning Disabled Students, in Proceedings of 20th Annual Conference for the Australasian Association for Engineering Education (2009)
16. S. K. O'Leary, B. E. Foutz, M. S. Shur, L. F. Eastman, Steady-State and Transient Electron Transport within Bulk Wurtzite Zinc Oxide, Appl. Phys. Lett. Submitted for publication
17. T. A. Elkhatib, A. V. Muravjov, D. B. Veksler, W. J. Stillman, X.-C. Zhang, M. S. Shur, and V. Y. Kachorovskii, Subwavelength Detection of Terahertz Radiation using GaAs HEMTs
18. R. E. Peale, H. Saxena, W. R. Buchwald, G. Aizin, A. V. Muravjov, D. B. Veksler, N. Pala, X. Hu, R. Gaska, M. S. Shur, Grating-gate tunable plasmon absorption in InP and GaN based HEMTs, in Proceedings of SPIE Optics + Photonics Conference, San Diego, CA, August (2009)

**Contact Information:**

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