Research Group of Microelectronics and RF Engineering

GROUP HEAD

Prof. Dr. Muhammad Mansoor Ahmed

Dr. M. Mansoor Ahmed completed the PhD degree in Microelectronics from the University of Cambridge, U.K., in 1995, and joined academia where he worked at different positions including Professor; Chairman; Dean; Executive Vice President and Vice Chancellor. Dr. M. Mansoor Ahmed research interests are in Microelectronics, Microwave devices and RF Engineering. He has supervised numerous MS and PhD research projects. He authored 125+ research papers and his ISI research impact factor is 75+ with citation index over 900+. Dr. M. Mansoor Ahmed is a fellow of the Institution of Engineering and Technology (IET), UK.; a Chartered Engineer (CEng) from the UK Engineering Council and holds the title of European Engineer (Eur Ing) from the European Federation of National Engineering Association (FEANI), Brussels. He is a life member of PEC (Pak); EDS and MTTS (USA).

RESEARCH AREAS

- Simulation and Modeling of Chrage Transport Mechanism of MESFET/MOSFET
- Simulation and Modeling of Charge Transport Mechanism of Organic Semiconductor Devices such as OLED, OTFT
- Investigation of Microscopic Phenomena in Electronic Devices based on Montecarlo Methods
- Electrical Characterization of Organic Semiconductor based Sensors
- Investigation of Photovoltaic Response of Novel Organic Semiconductor Devices
- Temperature Dependent Characterization of Organic Semiconductor Devices
- High Temperature Superconducting Electronics
- Antenna Design for Microwave and Millimeter-wave Applications
- Design and Characterization of Radio Frequency (RF) Circuits and Systems

GROUP MEMBERS

- Dr. Syed Abdul Moiz
- Dr. Muhammad Riaz (Alumni)
- Umair Rafique (Research Associate)
- Umer Farooq Ahmed (Research Associate)

CURRENT Ph.D. STUDENTS

- Muhammad Naeem Khan
- Saif ur Rehman
- Hisham Khalil
- Zubair Ahmed
- Anis Chaudhry
- Shahid Shafique
- Usman Tahir
- Qamar ud Din Memon

ALUMNI

Dr. Noor Muhammad Memon

Thesis Title: Modeling Techniques of Submicron GaAs MESFET and HEMTs.
Year: 2009

Dr. Imtiaz Ahmad Sajid

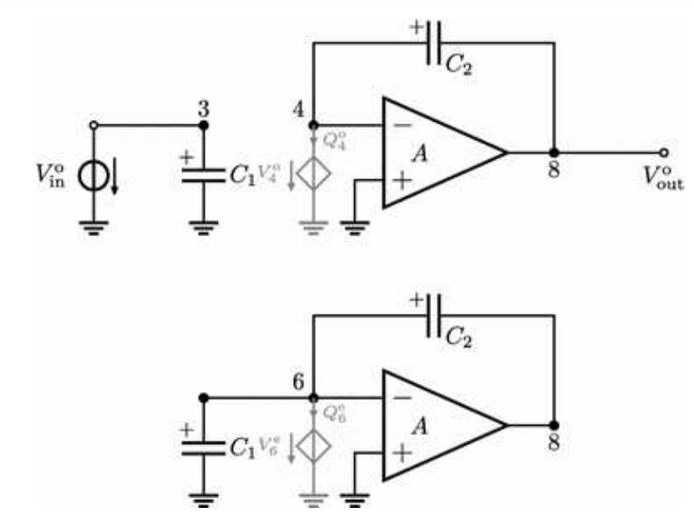
Thesis Title: Time Efficient Face Recognition for Real Time Applications.
Year: 2010

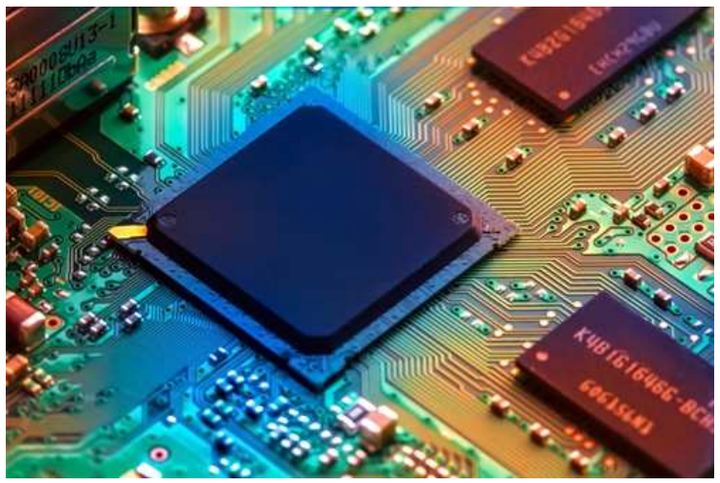
Dr. Muhammad Riaz

Thesis Title: Analytical and Optimization Based Modeling Techniques to Assess the Performance of Submicron SiC MESFETs
Year: 2017

Dr. Noshin Fatima

Thesis Title: Organic Dye Based Opto-Electronic Devices and Sensors
Year: 2018





Selected Publications

- S. Rehman, M. M. Ahmed, U. Rafique, and M. N. Khan, "A nonlinear model to assess DC/AC performance reliability of submicron SiC MESFETs", **Journal of Computational Electronics**, vol. 17, no. 3, pp. 1199-1209, September 2018.
- M. N. Khan, U. F. Ahmed, M. M. Ahmed, and S. Rehman, "An improved model to assess temperature-dependent DC characteristics of submicron GaN HEMTs", **Journal of Computational Electronics**, vol. 17, no. 2, pp. 653-662, June 2018.
- M. Riaz, M. M. Ahmed, U. Rafique, and U. F. Ahmed, "Assessment of intrinsic small signal parameters of submicron SiC MESFETs", **Solid State Electronics**, vol. 139, pp. 80-87, January 2018.
- N. Fatima, M. M. Ahmed, and Kh. S. Karimov, "Effects of humidity and temperature on Orange Dye-based organic field effect transistors fabricated at different gravity", **Journal of Electronic Materials**, vol. 46, no. 11, pp. 6588-6594, November 2017.
- M. M. Ahmed, M. Riaz, and U. F. Ahmed, "An improved model for the $I-V$ characteristics of submicron SiC MESFETs by evaluating the potential distribution inside the channel", **Journal of Computational Electronics**, vol. 16, no. 3, pp. 514-525, September 2017.
- N. Fatima, M. M. Ahmed, Kh. S. Karimov, Z. Ahmad, F. F. Muhammad, "Optical sensors based on the NiPC-CoPc composite films deposited by drop casting and under the action of centrifugal force", **Chinese Physics B**, vol. 26, no. 6, June 2017.
- J. S. Malik, U. Rafique, S. A. Ali, and M. A. Khan, "Novel patch antenna for multiband cellular, WiMAX, and WLAN applications", **Turkish Journal of Electrical Engineering and Computer Sciences**, vol. 25, no. 3, pp. 2005-2014, May 2017.
- N. Fatima, F. Aziz, Z. Ahmad, M. Najeeb, M. Azmeer, K. S. Karimov, M. M. Ahmed, S. Basheer, R. Shakoor, and K. Sulaiman, Compositional engineering of the pi-conjugated small molecular VOPcPhO: Alq 3 complex to boost humidity sensing," **RSC Advances**, vol. 7, no. 32, pp. 19780-19786, 2017
- Q. Zafar, N. Fatima, K. S. Karimov, M. M. Ahmed, and K. Sulaiman, Realizing broad-bandwidth visible wavelength photodiode based on solution-processed ZnPc/PC 71 BM dyad," **Optical Materials**, vol. 64, pp. 131-136, 2017
- M. Riaz, M. M Ahmed and U. Munir, An improved model for current voltage characteristics of submicron SiC MESFETs," **Solid-State Electronics**, vol. 121, pp. 54-61, 2016.

Conference Proceedings

- S. Rehman, U. Rafique, U. F. Ahmed, M. N. Khan, and M. M. Ahmed, "Effects of substrate on the AC performance of submicron GaN HEMTs", **13th International Conference on Emerging Technologies (ICET 2017)**, pp. 1-7, Islamabad, Pakistan, 2017.
- U. Rafique, H. Khahlil, and S. Rehman, "Dual-band microstrip patch antenna array for 5G mobile communications", **2017 Progress In Electromagnetics Research Symposium-Fall (PIERS)**, pp. 55-59, Singapore, 2017.
- H. Khalil, S. Rahman, M. M. Ahmed, and U. Rafique, "Design of slot antenna array for tracking radar using particle swarm optimization", **2017 Progress In Electromagnetics Research Symposium-Fall (PIERS)**, pp. 2985-2987, Singapore, 2017.
- H. Khalil, S. Rahman, M. M. Ahmed, Q. Cao, and I. Hussain, "Design of waveguide slot array to generate sum and difference pattern for synthetic aperture radar", **2017 Progress In Electromagnetics Research Symposium-Spring (PIERS)**, pp. 3632-3636, St. Petersburg, Russia, 2017.
- S. S. Saleem, M. M. Ahmed, U. Rafique, and U. F. Ahmed, "Optimization of linear antenna array for low SLL and high directivity. **In Multi-Topic Conference (INMIC), 2016 19th International**,pp. 1-6. IEEE, 2016.