Materials Research and Education

Faculty

Bryan Chin (Professor and Chair of MatE and Center Director), 334-844-3322, chinbry@auburn.edu
Bulk food monitoring, bacteria and spores binding, adaptive materials, fabrication and manufacture for PZT and shape memory alloys, sensor development, biological agent detection, phage and antibody based MEMS sensors for security and medical application, mechanical lifetime prediction, evaluation and development of stress to rupture design equations and end of life criteria for nuclear core materials, environmental degradation of materials. Also welding and joining, infrared sensing techniques, welding of highly irradiated materials in power producing reactors.

Zhong-Yang Cheng (Professor of MatE), 334-844-3419, chengzh@auburn.edu
Polymers, magnetostrictive devices, materials physics, structure-property relationship, dielectric, electromechanical, and magnetostrictive properties, of polymers, ceramics and single crystals, smart/adaptive materials, piezoelectric, ferroelectric, electro-optic, and dielectric ceramics and thin film, magnetostrictive thin film and nanowires, dielectric and multiferroic composites, design, fabricate and characterize novel micro/nano-sensor platforms, actuators and transducers, electroactive polymers (artificial muscle), electromechanical actuators, transducers, and energy harvest device, Biological and chemical sensors.

Jeffrey Fergus (Professor of MatE), 334-844-3405, ferguje@auburn.edu
Carbon dioxide bacterial sensing, materials for energy conversion and storage: interconnect/electrode/electrolyte materials for solid oxide fuel cells and lithium ion batteries, chemical compatibility and stability of materials, high temperature oxidation of metals and alloys, chemical sensors, electrochemical gas sensors.

Jong Wook Hong (Associate Professor of MatE), 334-844-7385, hongjon@auburn.edu
Microfluidic devices, integrated micro/nanofluidic systems, nanobiotechnology, biomolecular engineering, biomaterials, sustainable energy production, quantum dot synthesis.

Dong-Joo “Daniel” Kim (Associate Professor of MatE) 334-844-4864, dkim@auburn.edu
MEMs fabrication, microcantilevers, micro/nanosystems, smart materials, sensors, energy harvesting and storage, MEMS/NEMS devices, sensors and actuators, electronic thin film devices, energy harvesting, smart materials, condition monitoring.

Bart Prorok (Associate Professor of MatE), 334-844-4733, prorobc@auburn.edu
MEMS design, microstructure/property relationships of thin films and MEMS materials, micro and nanoscale testing of materials, structures, and MEMS devices, and design and fabrication of novel MEMS devices.

Aleksandr Simonian (Professor of MatE) 334-844-4485, simonal@auburn.edu
SPR, bio-chemical recognition, nanocomposite films and nanoparticles for biosensor applications, real-time monitoring of biological toxins, biosensor development for environmental analysis, food safety, medicine, agriculture, veterinary, industrial process control, biosensors for organophosphate neurotoxins detection, application of Plasmon Resonance Spectroscopy for biomolecules/surface interaction analysis.