Food Safety and Pathogen Detection

Faculty

Bryan Chin (Professor and Chair of MatE and Center Director), 334-844-3322, chinbry@auburn.edu
Bulk food monitoring, bacteria and spore binding, 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, adaptive materials.

James M. Barbaree (Scharnagel Professor of Biological Sciences), 334-844-1647, barbajm@auburn.edu
Rapid detection & subtyping of infectious pathogens using the most current tools in molecular biology, including Microchip sensors and Pulse Field Gel Electrophoresis (PFGE), microbiology, bacteria and spores

Mark Byrne (Breeden Professor of ChE) 334-844-2862, byrneme@auburn.edu
Kinetics, polymer membranes, drug delivery; bio (mimetic, inspired, and hybrid) materials; therapeutic and diagnostic biomedical devices; recognitive networks for sensing and drug delivery; functional intelligent polymeric films and networks; bionanotechnology.

Zhong-Yang Cheng (Professor of MatE), 334-844-3419, chengzh@auburn.edu
Polymer, 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.

Donald E. Conner (Professor and Head of Poultry Science), 334-844-2639, connede@auburn.edu
HAACP, sampling, poultry, policy and regulation.

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.
David W. Held (Associate Professor of Entomology and Plant Pathology), 334-844-3818, dwh0004@auburn.edu
Food and plant security, ecology and management of phytophagous insects particularly those pest attacking turfgrass and ornamental plants. Research interests include plant-insect interactions, insect behavior, and ecotoxicology.

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.

Tung-shi Huang (Professor of Poultry Science), 334-844-3290, huangtu@auburn.edu
Antimicrobial development, immobilization, urban and Consumer Poultry Science

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.

Robert Donald Locy (Professor of Biological Sciences), 334-844-1623, locyrob@auburn.edu
Plant biochemistry, environmental signal transduction.

William C. Neely (Instructor of Chemistry and Bio-Chemistry), 334-844-6960, neelywc@auburn.edu

Minseo Park (JT Walter Professor of Physics), 334-844-4270, parkmi2@auburn.edu
Raman spectroscopy, power electronics, photovoltaics, and biosensing based on wide band gap semiconductors (GaN/ZnO).

Valery A. Petrenko (Professor of Pathobiology), 334-844-2897, petreva@auburn.edu

Bart Prorok (Associate Professor of MatE), 334-844-4733, prorobc@auburn.edu
MEMs design and devices, 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.

Curtis G. Shannon (Professor of Chemistry and Bio-Chemistry), 334-844-6964, shanncg@auburn.edu
Self molecular assembly, electroanalytical chemistry using chemically modified electrodes and interfaces.

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.

Iryna B. Sorokulova (Professor of Microbiology), 334-844-5307, sorokib@auburn.edu
Bio-molecular recognition, development of new microbial approaches for detection and control of pathogens.

Sang-jin Suh (Associate Professor of Biological Sciences), 334-844-1666, suhsang@auburn.edu
Phage development, bacterial stress response, bacteriophage biology and bacterial pathogenesis.

Vitaly J. Vodyanoy (Alumni Professor of Anatomy Physiology & Pharm), 334-844-5405, vodyavi@auburn.edu
Molecular recognition, immobilization, sensory physiology, receptors, cancer cells, biosensors, cell membranes, monolayers and bilayers, molecular recognition, olfactory receptor neurons, nanoparticles, biopolymers, bacteriophages, primo-vascular system, and light microscopy.

Jin Wang (Assistant Professor of ChE), 334-844-2020, wang@auburn.edu
Statistical probability, manufacturing process modeling, microelectronic and pulp and paper processes; systems biology; metabolic network identification and early cancer detection.

Sondra Jean Weese (Professor of Poultry Science), 334-844-3269, weesesj@auburn.edu
Industrial practices, needs, urban and consumer poultry science, food processing.

Jacek Wower (Professor of Animal Sciences), 334-844-1508, wowerja@auburn.edu
DNA, RNA, overlapping fields of RNA structure and function, protein-nucleic acid interactions, and protein synthesis; the work is concentrated on tRNA and tmRNA, two small RNA molecules which play an important role in protein synthesis and translation.

Wei Zhan (Associate Professor of Chemistry and Bio-Chemistry), 334-844-6981, wzz0001@auburn.edu
Biosensing, chemical detection, solar energy conversion, bioanalytical chemistry and materials chemistry