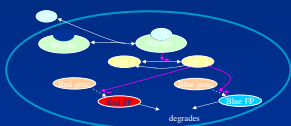


## Biophysics

The two main efforts are in computational biology and in medical physics (imaging and spectroscopy).



*Simulating cell-like entity to detect molecules*

Faculty: Brent Foy  
 Funding sources: AFRL

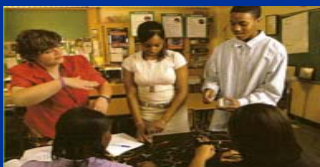
## Education

There are various programs both for in-service and pre-service K-12 teachers. Faculty is involved in research at improving teacher quality.

Faculty: Beth Basista, Kathy Koenig

Funding sources: Ohio Board of Regents, Ohio Department of Education

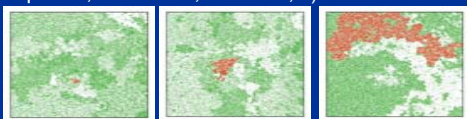
Centers: EXCEL, OHEN



*In-service teachers*

## Geophysics

■ Modeling of nonlinear processes (coastal dynamics, earthquakes, forest fires, tsunamis, ...)



*Modeling forest fires using cellular automata*

■ Percolation theory of porous media

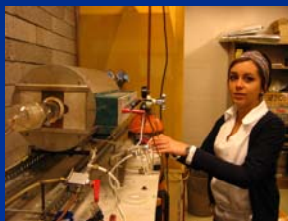
Faculty: Gust Bambakidis, Allen Hunt, Thomas Skinner, Sarah Tebbens

Funding sources: DOE, NSF

## Materials Research

Research involves computational, experimental, and theoretical investigations in the growth, characterization, and device application of semiconducting and superconducting nanostructures.

• Nanostructures



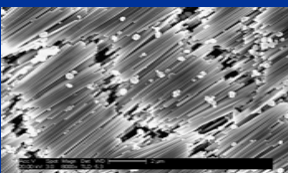
*Growing ZnO nanorods*

• Wide-band-gap materials (GaN, ZnO, SiC)



*Si-doped GaN on sapphire*

• Metallic nanoparticles



*Semi-aligned silver nanorods*

• YBCO superconducting films on nickel

Faculty: Jerry Clark, Zhaoqiang Fang, Gary Farlow, Gregory Kozłowski, Lok C. Lew Yan Voon, David Look, Phil Yu

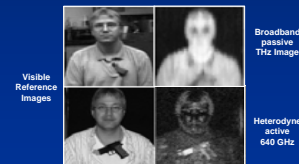
Equipment: DLTS, 2MeV electron van de Graaff, 120keV ion implanter, PL, cathodoluminescence, PLD, near-field evanescent microwave microscope, magnetron sputtering system

Funding sources: AFOSR, NSF

Center: Semiconductor Research Center

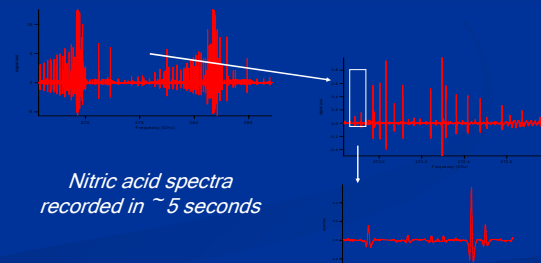
## Spectroscopy and Imaging

• Terahertz imaging, non-destructive evaluation



*Concealed weapon detection*

• Molecular spectroscopy, chemical sensing



• Nuclear Magnetic Resonance spectroscopy

Faculty: Doug Petkie, Thomas Skinner

Equipment: 0.1-1.0 THz spectrometer

Funding sources: AFOSR, ARL, DARPA, NSF, ONR

## Computational Research

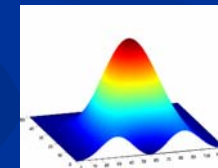
• Atmospheric physics

• Biology

• Electromagnetics

• Geophysics

• Materials



*Electron wave function in a nanorod*

Faculty: Jane Fox, Brent Foy, Lok C. Lew Yan Voon, Thomas Skinner, Sarah Tebbens

Equipment: 32GB 4 CPU Sun Opteron workstation, OSC supercomputers

Funding sources: AFOSR, NASA, NRL, OBR