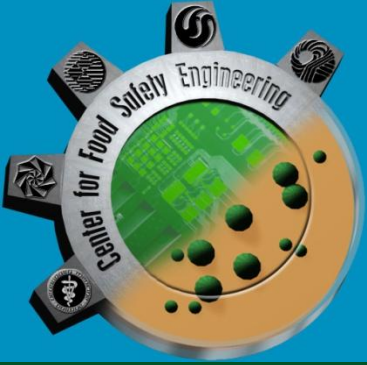


12th Annual Purdue/USDA Food Safety Engineering Meeting

Welcome!

Richard H. Linton
Director, Center for Food Safety Engineering
November 3-4, 2010

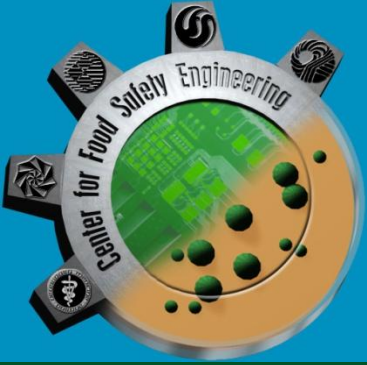




CFSE: Celebrating 10 Years!

Thank you for ALL that YOU do...

- ✔ Great people
- ✔ Great teams
- ✔ Great science
- ✔ Great technologies
- ✔ Strong leadership
- ✔ and great friends



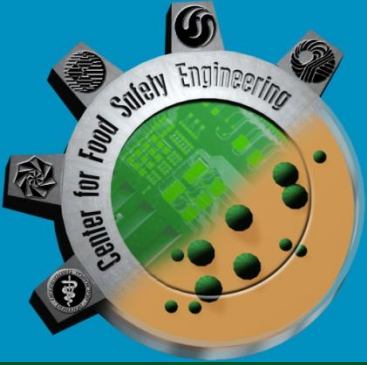
Meeting Agenda

▼ November 3

- 9:00 am Welcome!
- 9:45 am Purdue led project reports
- 12:15 pm Lunch
- 1:15 pm Purdue led project reports (con't)
- 3:30 pm Special presentation (Dr. Shi)
- 4:00 pm Scientific poster session
- 5:30 pm Adjourn
- 6:00 pm Dinner

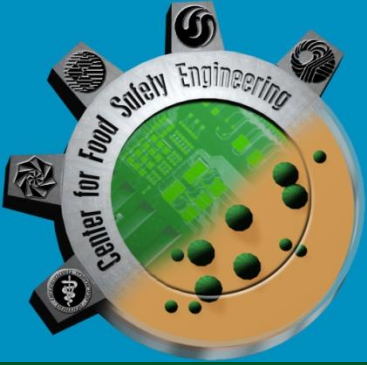
▼ November 4

- 7:00 am Breakfast
- 8:30 am Welcome from USDA
- 8:35 am USDA led projects
- 12:15 pm Lunch
- 1:15 pm USDA led projects (con't)
- 3:45 pm Adjourn



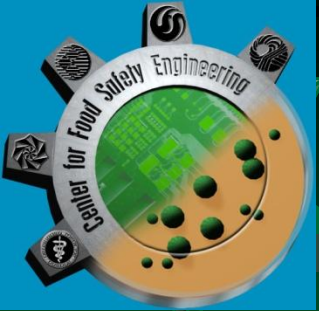
OSQR Project Goals

- ✓ Develop and implement new knowledge, technologies and systematic approaches for detection of microbial and chemical contamination of foods.
- ✓ Goals are accomplished by utilizing multi-disciplinary research teams that involve food scientists, microbiologists, molecular scientists, and agricultural and electrical engineers.



OSQR Project Approach

- ✔ Our approach for development of improved detection systems focuses on separation, detection, identification, and quantification of target organisms or toxins in food matrices.
- ✔ **Objective 1:** Develop useable technologies to rapidly and effectively concentrate viable target cells from various food matrices in a self-validating system.
- ✔ **Objective 2:** Develop, evaluate and adopt novel technologies for detection, identification, and quantification of viable and non-viable target microorganisms and toxins.



CFSE Overall Approach

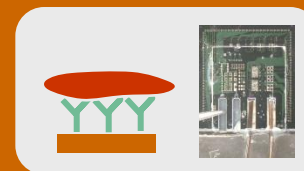
Sample



Processing/ Separations



Detection/ ID



Data Analysis/ Results



Challenges

- Decontamination
- Diversity of Samples

- Extraction of Bacteria (live)
- Diversity of Samples
- Macro → Micro → Nano

- Highly Sensitive (Single Cell)
- Live Cells
- Rapid and Accurate

- User Friendly
- Automated

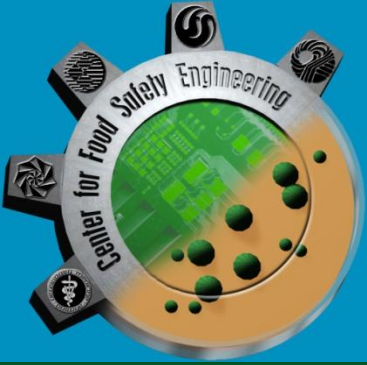
Our Solutions

- Preventative Technologies
- ClO₂ Gas Treatments

- Antibody Conjugated Beads
- Bio-separations
- Dielectrophoresis
- Membrane Filtration and Recovery

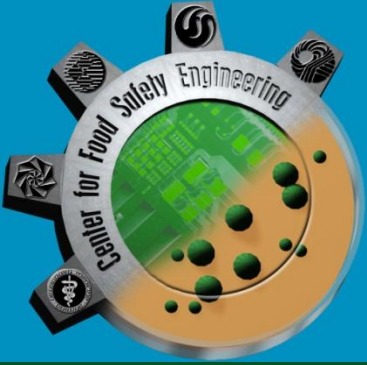
- Antibody Development
- Bioluminescence
- Cell-Based Sensors
- Integrated Biochips
- On-chip Cell Culture
- Phage Display
- PCB Detection
- PCR and ELISA
- Light Scattering
- FTIR

- Electrical
- Optical
- Handheld and Integrated Device



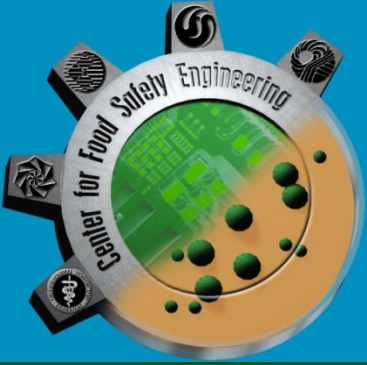
Purdue Led Projects

- ✔ Automated Sample Processing for Pathogen Detection Systems, **Ladisch**
- ✔ The Light Scattering Sensor for Pathogen Detection , **Bhunia**
- ✔ Development of Biosensor-based Technologies for Detection of Foodborne Hazards, **Bashir**
- ✔ Colorimetric Phage-based Detection of Foodborne Pathogens, Dr. Bruce Applegate, Use of FTIR for Pathogen Detection, **Mauer**
- ✔ Detection of Foodborne Pathogens via an Integrated Spectroscopy and Biosensor Based Approach Nanoparticle-based DNA Multiplexed Probes for Pathogen Detection Using Confocal Ramon Microscopy, **Irudayaraj**



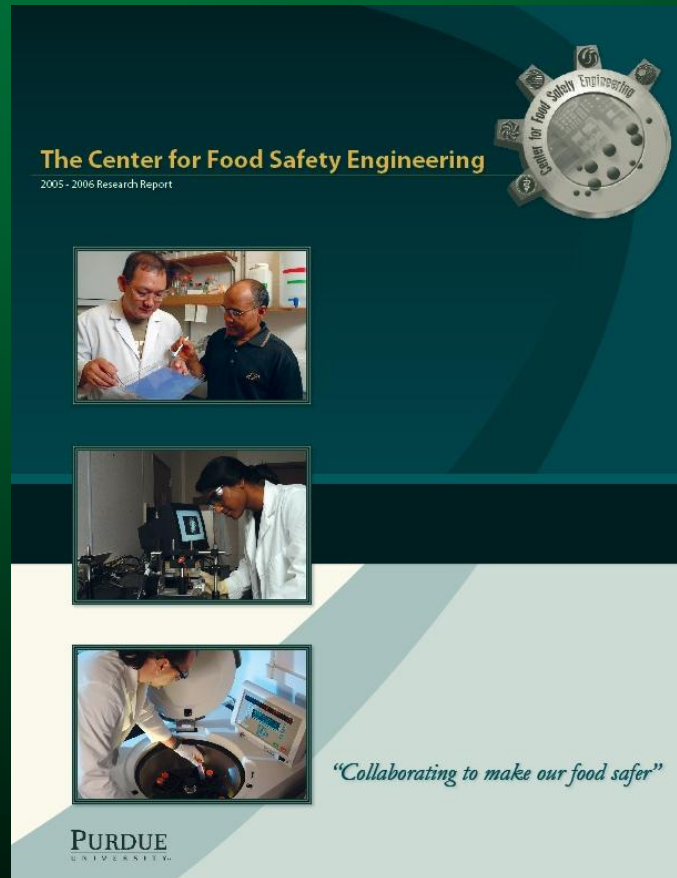
Other Logistics

- ▼ Bathrooms
- ▼ Breaks/Food
- ▼ Phones/Cell Phones
- ▼ Memory Stick

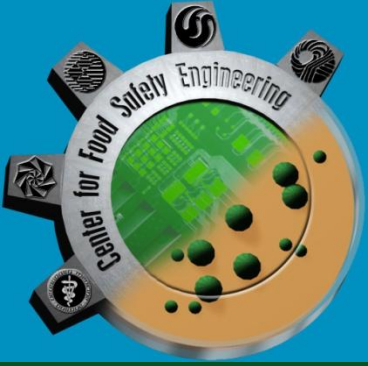


CFSE WEBSITE

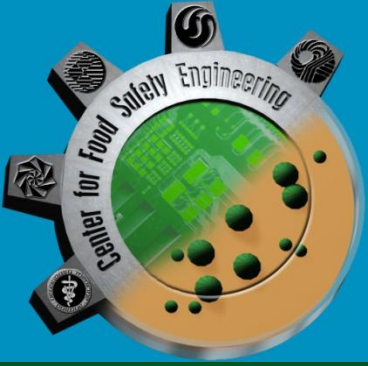
(www.cfse.purdue.edu)



- Annual Research Report
- Current CFSE News
- Information about food safety and detection



ACKNOWLEDGEMENTS..



INTRODUCTIONS.... AND WELCOMING REMARKS