



9th Annual Purdue/USDA Food Safety Engineering Meeting

**Welcome to
Purdue University!**


Richard H. Linton
Director, Center for Food Safety Engineering
October 30-31, 2007





Introductions...

- ✓ Purdue University
 - Sonny Ramaswamy, Director of ARP
 - Suzanne Nielsen, Dept. Head FS
- ✓ USDA-ARS
 - Jim Lindsay, National Program Leader, FS
 - Shu-I Tu, Acting Director, Wyndmoor, PA




Meeting Agenda

- ✓ October 30
 - Welcome!
 - Purdue led project reports
 - Lunch (provided for all attendees)
 - Purdue led project reports (con't)
 - Travel to Department of Food Science, Purdue University
 - Afternoon poster session and lab demonstrations
 - Wine Tasting (Wine Library, Department of Food Science)
 - Dinner (Wine Library, Department of Food Science)
 - Vans Transport USDA attendees back to hotel
- ✓ October 31
 - USDA-ARS ERRC led project reports
 - Boxed lunch (provided for all attendees)
 - Meeting adjourn
 - USDA-Travel back to Indianapolis airport




Other Logistics

- ✓ Bathrooms
- ✓ Breaks/Food
- ✓ Phones/Cell Phones
- ✓ Notebook Content



Funded Projects - 06

Project Title	Investigator(s)
Engineering of biosystems for the detection of <i>Listeria monocytogenes</i> in foods	M. Ladisch, ABE R. Bashir, ECE A. Bhunia, FS J. P. Robinson, Bio Engr
Multipathogen screening using immunomicroarray	A. Bhunia, FS M. Morgan, FS
Optical forward scattering for bacterial colony differentiation and identification	A. Bhunia, FS D. Hirtleman, ME J. P. Robinson, Bio Engr
Optical biosensors for food pathogen detection	A. Bhunia, FS M. Morgan, FS
Continuous monitoring of chemical agents in aqueous media using bioreporter-based sensors	D. Nivens, FS M. Franklin, Montana State C. Corvalan, FS
Immunocapture real-time PCR to detect mycotoxigenic mold spores in grains	M. Cousin, FS C. Woloshuk, Botany
Nanoparticle based DNA multiplexed probes for pathogen detection using confocal raman microscopy	J. Irudayaraj, ABE
Rapid, quantitative, and reusable immunosensors for bacteria detection on a microfluidic platform	C. Lu, ABE A. Bhunia, FS



Funded Projects - 07

Project Title	Investigator(s)
Engineering of biosystems for the detection of <i>Listeria monocytogenes</i> in foods	M. Ladisch, ABE R. Bashir, ECE A. Bhunia, FS J. P. Robinson, Bio Engr
A method for capture and detection of <i>E. coli</i> 0157:H7 using polymer-immobilized phage	M. Morgan, FS B. Applegate, FS
Bacteria rapid detection using light scattering	A. Bhunia, FS
Peptide array biosensor for high throughput and multiplexed detection of foodborne pathogens	K. Park, Bio Engr J. Leary A. Aronson
Detection of foodborne pathogens via an integrated spectroscopy and biosensor-based approach	J. Irudayaraj, ABE L. Mauer, FS C. DebRoy, Penn State P. Fratamico, ERRC
Portable biosensor for rapid and ultra-sensitive identification of organophosphorus foodborne contaminants	L. Stanciu, Materials Engr S. Andrescu, Clarkson Univ.



Highlighting Technologies



Light Scattering



Bio-Separation / Listeria Bio-chip



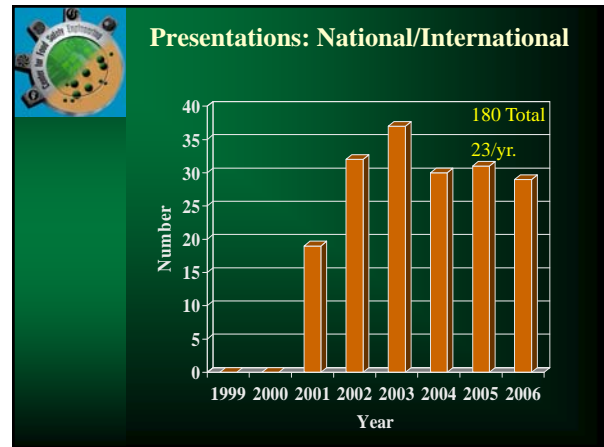
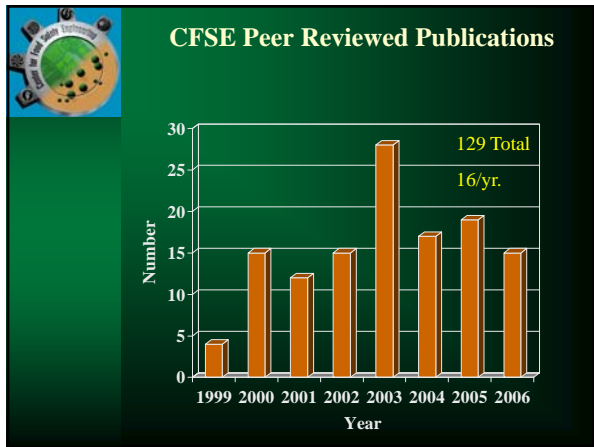
Infrared Spectroscopy



Atomic Force Microscopy



SUMMARY OF OUR PROGRESS




06-07 Other Accomplishments

- ✓ Participation in Kansas State University – Rapid Methods Program
- ✓ Published a series of articles (Purdue University and USDA-ARS collaboration) for Journal of Rapid Methods and Automation in Microbiology
- ✓ Invitation to present (Bhunia) our technologies to the National Advisory Committee for the Microbiological Criteria for Foods
- ✓ Successfully completed the USDA-OSCR process (scoring 7/8)



Purdue Team - Kansas State



Published Series of Articles



Broader Impacts

Through our efforts, we use an interdisciplinary approach and our collaboration with USDA scientists to:

- Develop microbial and chemical detection platforms that *perform more effectively* than current systems
- Are “usable” and cost effective for testing laboratories, the food industry, and regulatory agencies
- Help complement USDA efforts to better assure a safer food supply



Come Visit Us...



www.cfse.purdue.edu



ACKNOWLEDGEMENTS..



Can you Guess who they are?



Winner gets a Prize!