Sensors, Smart Packaging and Big Data for Food Safety Engineering

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Objectives / Value Proposition

Improve food safety and traceability from “Farm-to Fork” through sensors, smart processes and packaging, and big data approaches

Motivation

- Blue Bell Ice Cream
  5-year Listeria outbreak 2010-2015
  multi-state
  10 illnesses, 3 deaths

- Romaine lettuce (April 2018)
  E. Coli outbreak
  Multi-state
  60+ seriously ill, including kidney failures

  - Food Safety Modernization Act (FSMA) was introduced to improve food inspection but FDA did not have enough manpower for its successful implementation
  - **Lack of smart processes and traceability in food industries**

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Approach

- Farm to Fork approach for holistic food safety
- Focus on ready-to-eat food (produce, dairy, etc.)
- **Embed sensors in food processes and packaging to enable smart manufacturing and traceability**
- **Design processes and packaging for preventing / removing contaminants and enhancing safety**
- **Harness emerging capabilities of “big data” networks for managing traceability within global supply chains**

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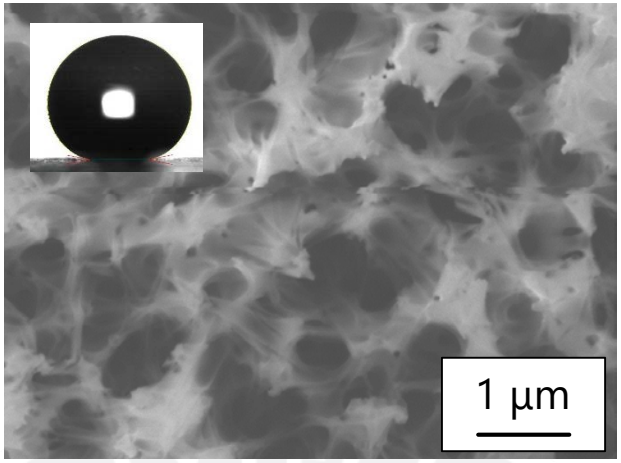
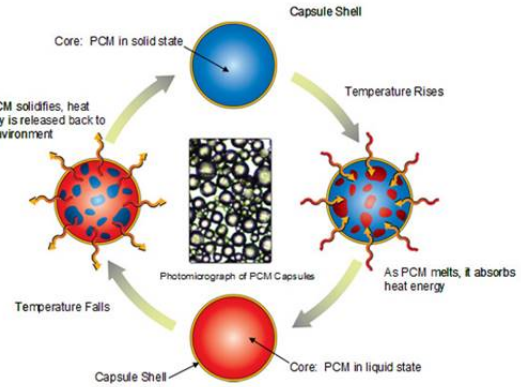
Seed Grant Activities

- Embedded Sensors
- Smart Processing
- Smart Packaging
- Big Data

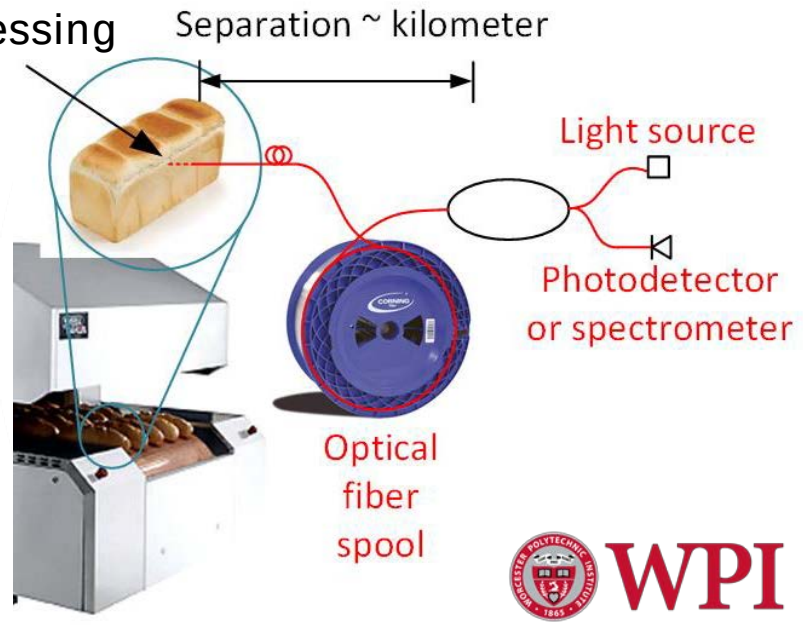
Food safe microstructured antimicrobial coatings



Phase change packaging to prevent spoilage



Embedded sensors for smart processing



Embedded sensors for monitoring and traceability

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