

## Reflection Scatterometer

**A rapid, multiple wavelength optical scattering instrument increases the speed and accuracy of microbial and bacterial detection, saving time and money for applications in food safety, biosecurity, and healthcare.**

Optical interrogation of biological samples are popular in diverse fields from agriculture to biomedical applications because the rapid detection and identification of microbial and bacterial colonies is a critical step in many manufacturing processes. A detection technology, named Bacteria Rapid Detection using Optical Scattering Technology (BARDOT), uses a single wavelength light source cast through a colony to create a scatter pattern that can be identified. However, only using one wavelength limits the technology's ability to differentiate as the desired level of taxonomy becomes more specific.

Researchers at Purdue University have expanded the BARDOT technology into a multiple wavelength interrogation instrument that will let the user take advantage of the benefits of scatter patterns from different laser wavelengths. It allows for a measurement time for three different wavelengths under four seconds by using a simple, stackable, cage-type pellicle beam splitter structure. This additional information increases the technology's ability to detect and identify bacteria with greater precision than before. This increased speed and accuracy of detection and identification would save time and money for users in fields ranging from food safety to biosecurity.

### **Advantages:**

- Detect and identify bacteria with greater precision and more rapidly
- Saves time and money

### **Potential Applications:**

- Medical/Health
- Food industry

### **Technology ID**

2015-BAE-66983

### **Category**

Agriculture, Nutrition, &  
AgTech/Food Safety &  
Traceability  
Biotechnology & Life  
Sciences/Biomarker Discovery &  
Diagnostics  
Biotechnology & Life  
Sciences/Analytical & Diagnostic  
Instrumentation

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### **View online**



-Biosecurity

-Public safety

-Agriculture

**TRL: 4**

**Intellectual Property:**

Provisional-Patent, 2014-10-02, United States | PCT-Patent, 2015-10-01, WO  
| NATL-Patent, 2017-03-29, United States | EP-Patent, 2017-03-30, Germany  
| NATL-Patent, 2017-03-30, European Patent | CON-Gov. Funding, 2020-09-02, United States

**Keywords:** Bacteria Rapid Detection using Optical Scattering Technology, BARDOT, multiple wavelength interrogation, microbial identification, bacterial identification, optical interrogation, scatter pattern technology, food safety detection, biosecurity detection, rapid detection and identification