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Simultaneous Sensor Detection Platform of LIBS and Raman for Authentic Testing

A new handheld system combines laser-induced breakdown spectroscopy (LIBS) and Raman spectroscopy to provide simultaneous elemental and molecular analysis for faster, more accurate food contaminant detection.

Researchers at Purdue have developed a handheld system that combines two spectroscopic techniques to help detect and characterize food contaminants. Combining laser-induced breakdown spectroscopy (LIBS) and Raman spectroscopy, this technology can implement simultaneous elemental and molecular analysis, which can save time and increase accuracy when inspecting foods. While there are other handheld devices for either LIBS or Raman spectroscopy, none have combined the two while also using a visible laser for the Raman component.

Technology Validation: A pulsed laser for LIBS was irradiated with a 2 Hz repetition while a continuous laser for Raman was turning on. After a timed delay from the pulsed laser irradiation, a fixed gate width of 400 milliseconds was adjusted to get both LIBS and Raman in the same spectral range.

Advantages:

-Simultaneous analysis

-Multiple spectroscopic techniques

Applications:

-Food safety

TRL: 4

Intellectual Property:

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Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation

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