



where discovery and opportunity connect

Simple Optical Sensor for Biodiesel Contaminant in Jet Fuel

The Problem:

Contamination in jet fuel can cause engine throttles to stick, leading to aviation accidents. FAME (biodiesel) sticks to surfaces, and small traces may result in engine operability problems and flameout. Current standards allow up to 5 ppm FAME in fuel, but most instruments do not have that sensitivity. There is a strong need for a highly sensitive, quick, easy, and direct ppm-level detection of FAME in the aviation industry.

The Technology Solution:

UT researchers have developed thin film sensors with high sensitivity toward FAME contaminant. These sensors detect the trace biodiesel (FAME) contaminant as low as 0.5 ppm in less than 30 minutes. The sensors are intrinsically small, easy to use, inexpensive, and can be mass produced.

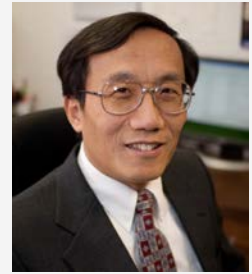
Applications:

- Portable device for the detection of biodiesel (FAME) contaminant in petroleum fuels.
- Verification of biodiesel in biodiesel-diesel blend.

Benefits:

- Rapid and sensitive method for detection of biodiesel contaminant in jet fuel.
- Small, inexpensive and easy to use.
- Can be mass-produced and potentially be used for field application.

MAIN INVENTOR



Ziling Xue, Ph.D.

Dr. Ziling Xue is a Paul and Wilma Ziegler Professor of Chemistry at the University of Tennessee. He was named a National Science Foundation Young Investigator and Camille Dreyfus Teacher-Scholar. He is a Fellow of the American Association for the Advancement of Science (AAAS). Dr. Xue has studied inorganic and analytical chemistry including the development of novel chemical sensors.

For further information contact:
UTRF Licensing Associate: **Nghia Chiem**
Phone: **865.974.1669**
Email: **nchiem@tennessee.edu**

Reference PD 13070

The University of Tennessee Research Foundation (UTRF) is a non-profit corporation responsible for commercializing University of Tennessee technologies and for supporting University research. UTRF seeks parties interested in learning more about this technology and in exploring possible research and/or commercialization arrangements.