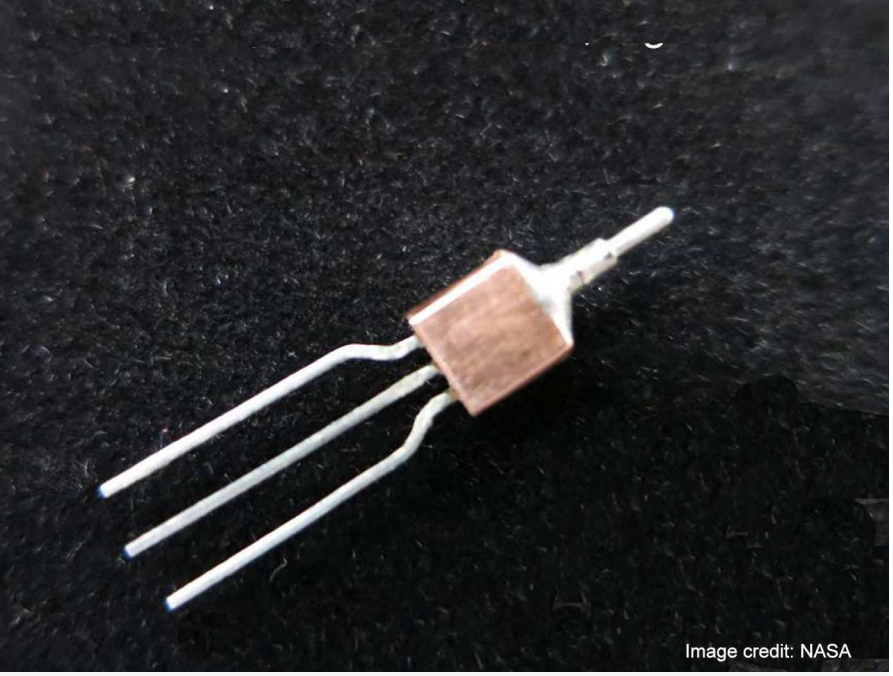


Image credit: NASA

National Aeronautics and Space Administration

Sensors

# Solid State Sensor for Detection and Characterization of Electric Fields

## Non-contact method for measurement of the true electric field revealing properties and characteristics of materials and plasmas

NASAs Langley Research Center has developed a new solid state integrated circuit based on field effect transistor (FET). Called ergFET, the sensor characterizes the electronic properties of materials, allowing for detection of items like baggage, wiring, liquids, and can even be used for medical imaging such as remote EKG.

## BENEFITS

- High sensitivity
- Improved resolution
- Portability
- Improved robustness
- Solid state, no moving parts

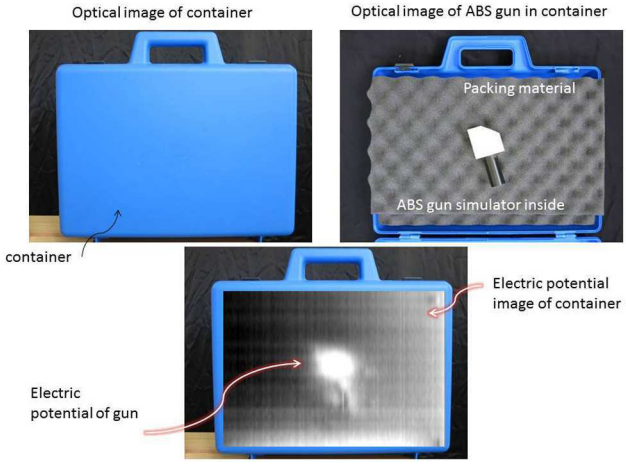
## APPLICATIONS

- Security screening
- Medical imaging
- Non-destructive testing
- Intrusion detection
- Forensics
- Combustion science
- Sensor design
- Electrostatic discharge (ESD) mitigation

technology solution

## THE TECHNOLOGY

This equilibrium-reversing-gate field effect transistor (ergFET) deploys an electrode near the gate of the transistor to control and reverse leakage currents which are typical in transistors and can lead to measurement errors. It can be built into an array to enable higher resolution imaging and is a solid state device free of moving parts. This enables portable and hand held sensor designs.




Detection of All Plastic Gun Hidden in Luggage. Image credit: NASA Langley

## PUBLICATIONS

Patent Pending

Generazio, E. R: Electric Potential and Electric Field Imaging with Applications, Materials Evaluation, Volume 73, Issue 11, November 1, 2015, pp 1479-1489

More Information

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