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## Portable Radiation Detector

### The Problem:

With the wider use of nuclear materials in the present day, nuclear security has grown increasingly important given concerns about the potential availability of such materials to terrorist groups. To safeguard the public against the misuse of such radioactive materials, detection devices that are capable of thwarting such attacks must be further refined, developed, and implemented. Most current systems for detecting and positioning radioactive materials are inflexible in how they can be deployed and therefore are limited to portals, choke points, or other immobile uses. Other current systems suffer from a number of drawbacks, such as high expense, lack of positioning accuracy, slow responsiveness, limitations to a particular energy range, etc. Accordingly, there is a need for an approach that is mobile and more cost efficient than traditional portal monitors. Additionally, mobile detection systems would facilitate a more timely response to a potential threat.

### The Technology Solution:

Researchers at the University of Tennessee have developed a portable radiation detection device. This device can be vehicle mounted, allowing for more rapid detection of radioactive materials over a wide area. Unlike cur-

rent detection devices that simply alert the operator that there is radiation nearby, this device can locate the direction of the source. In addition, this device can be made with low cost materials, and it detects radiation of a wide energy range. This offers a great solution for emergency response teams where rapid detection and localization of radioactive materials is of utmost importance.

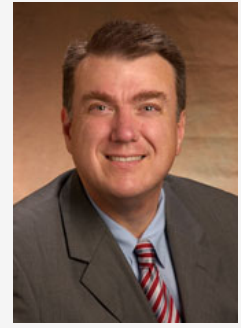
### Applications:

- Emergency disaster response

### Benefits:

- Low cost
- Provides directionality

## THE INVENTORS



**Dr. Howard Hall**, a nuclear chemist and expert in preventing and responding to nuclear terrorism, was appointed as the third UT-ORNL Governor's Chair in March 2009. Hall's work centers on topics ranging from ways to detect the presence of illicit radioactive material and remove it from circulation to establishing better methods of responding to and recovering from nuclear incidents.



**Dr. Steve Skutnik** joined the faculty of the UT Department of Nuclear Engineering as an Assistant Professor in 2012. His research interests include reactor physics modeling and simulation for nuclear security applications.

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