

# THOR LVX

Photonuclear Detection System



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Photonuclear technology significantly  
Enhances the accuracy and  
Speed of threat detection



A high priority project

Physicists in Russia and USA with high energy expertise

Supported by National Labs

New and high effective detection technology

Definitive molecular identification of explosives, nuclear materials and narcotics

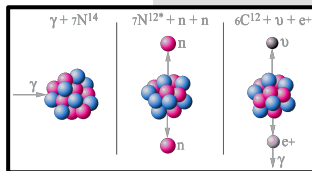
A serious scientific program for security

***Ability to detect*** any explosive in any container through any barrier

***Extreme selectivity*** This method is sensitive only to substances with high contents of carbon and nitrogen that forms the basis of modern explosive

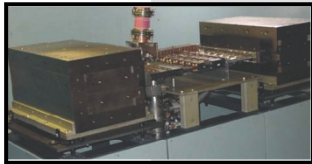
***High speed of operation*** 20 ms per test, we can check up to 50 zones per second

# Advanced Explosive Detection System



Nanotechnology-based EDS detects contraband at molecular levels

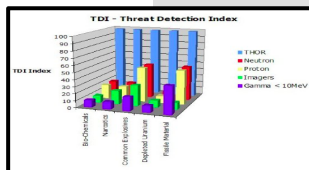
- Microbursts of gamma-rays produce nano-photonuclear reactions
- Illegal substances produce unique signatures, allowing the system's detectors to identify both detailing chemical composition and quantity



Expandable database allows EDS system to detect & identify explosive, nuclear materials; chemical or biological agents; illegal drugs; other hazardous contraband

Miniature high-energy accelerator penetrates all barriers

- Examine cargo containers, airline passenger baggage, air/land/sea shipments
- Able to penetrate concealment media – water, concrete and steel



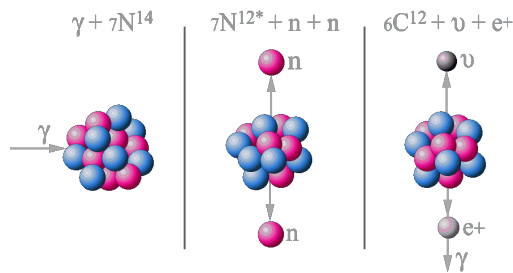
Cost savings realized with automated operation, increased accuracy, lower energy consumption

System expected to yield unsurpassed detection rates and faster processing speeds

- Triples the rate of baggage screening compared to current systems
- Eliminates false positives

## Why is THOR LVX different?

Compared to current technologies such as nuclear magnetic resonance and X-ray detection, THOR systems use direct, Photonuclear detection. This unique technology is capable of penetrating all barriers and identifies explosives at the Molecular level. When exposed to micro-bursts of radiation, these illegal substances produce a unique signature allowing the system to not only detect the presence of these substances but also identify their chemical composition and quantity. The system can be expanded to detect the presence of nuclear material, narcotics, and targeted chemical and Biological agent.



### What is Photonuclear Detection?

Electron beams are accelerated to speed by magnetic forces and sent in 16 millisecond pulses into the container being examined. Using this method, objects containing carbon and nitrogen – basic building blocks of virtually all explosives – will emit gamma energy. This type and amount of energy received by the detectors is compared to database matching contraband substances to their unique molecular profile.

### How Does THOR Work?

The heart of our THOR LVX system is a miniature particle accelerator producing an amazing 55 MeV of power. This tremendous power advantage allows the system to completely penetrate a cargo container and all methods of concealment such as water, concrete, steel. Detection software compares information received with its expandable database, identifies the 'target substance' and estimates the amount of substance present.

THOR LVX Identifies the Molecular Composition of Inspected Items

Detection Without Question

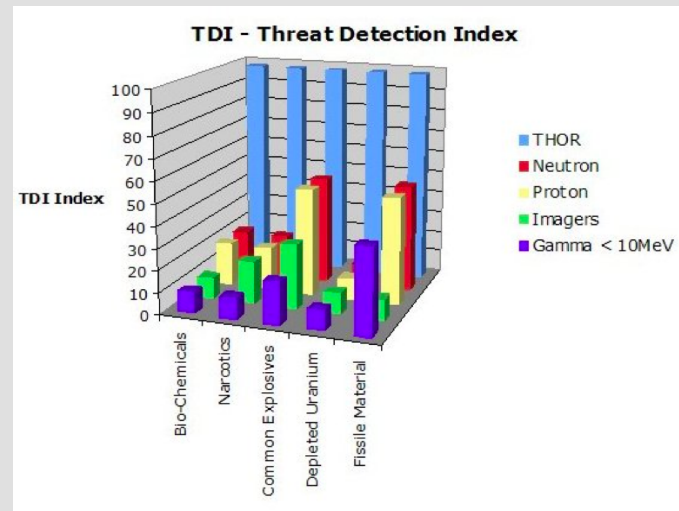
## X-ray Technology

- Relies on human interpretation
- High false alarm rates
- Slow processing speed
- No measure of quantity
- High operating cost

## THOR LVX

- Definitive molecular profile
- False positive rate <1%
- 3X faster processing speeds
- Uniquely able to detect contraband quantity
- Low operating costs

## Detection & Technologies Comparison



*If* **Explosive Detection** is your top priority . . .  
*Capable of detecting, identifying, and quantifying explosives in containers.*

*If* **Accuracy** is paramount . . .  
*99.6% detection rate. Penetrates all barriers and identifies explosives at the molecular level.*

*If* **Speed** is important . . .  
*Three times faster than current systems.*

*If* **One expandable system** meets your needs . . .  
*Now and when the threat changes.*

*If* **Cost efficiency** counts . . .  
*Totally automated – energy and maintenance savings.*

*Then* **THOR** is the answer !

**THOR** series  
Advanced Explosives  
Detection System

