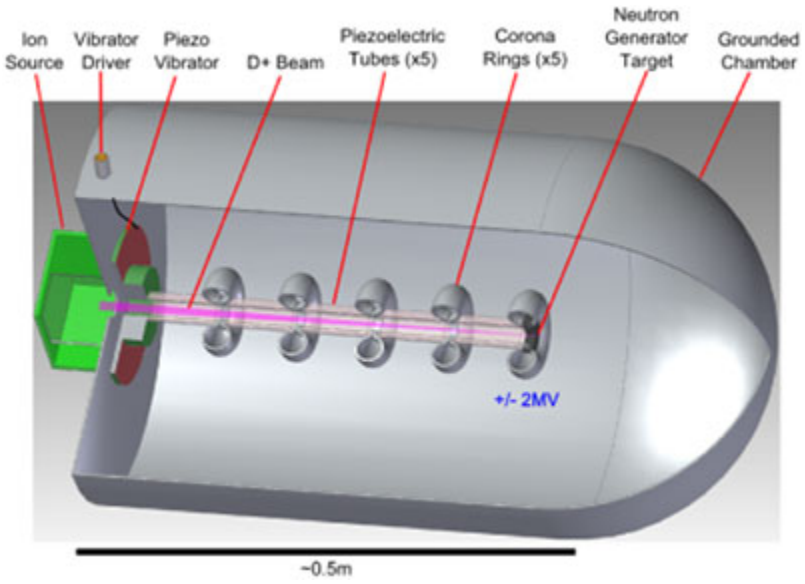
**Docket #:** S15-084

# Piezoelectric Neutron Generator (SPAN)

Stanford researchers have developed a portable particle accelerator – the SLAC Piezoelectric Accelerator Neutron Source (SPAN). When combined with an ion source and a deuterated target, this piezoelectric, high-voltage generator makes a compact neutron generator system. The piezoelectric material provides the structural support, insulation, and high-voltage generation for the electrostatic accelerator. SPAN demonstrates dramatic size, weight, and power improvement over the present state-of-the-art.



Piezoelectric Accelerator Neutron Source (SPAN)

## Applications

- **Accelerator-driven neutron sources** for **thermal neutron radiography**:
  - Manufacturing Quality Assurance (aerospace, automotive, etc.)
  - Imaging corrosion in aircraft structures
  - Locating faulty connections in electronics
  - Detecting explosive charges

    - **Medical therapy and imaging**
- **Fast neutron radiography** for homeland security and counter-terrorism
    - Portable cargo scanning
    - Defense-forensics applications
- **Neutron activation analysis**
    - Nuclear fuel assembly assays
    - Gold detection in bore-hole cores
- Active interrogation
    - **Cargo and package scanning for explosives, fissile, or fertile nuclear materials**

## Advantages

- Compact, light and appropriate power

## Patents

- Published Application: 20160338186
- Issued: 9,750,124 (USA)

## Innovators

- Mark Kemp
- Erik Jongewaard
- Matthew Franzi
- Andrew Haase

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