Brookhaven National Lab Overview

Presented at 2014 CVT Kick-Off Workshop

by Dr. Ralph B. James, BNL
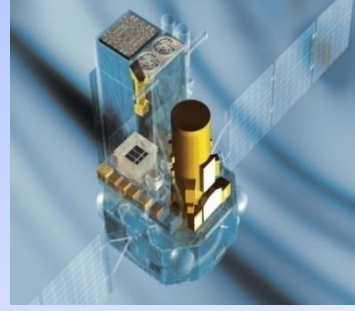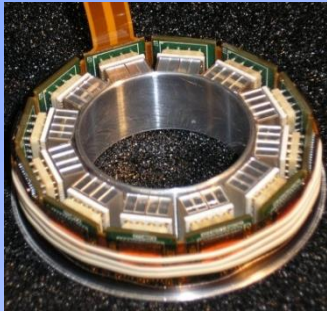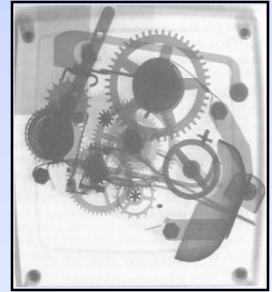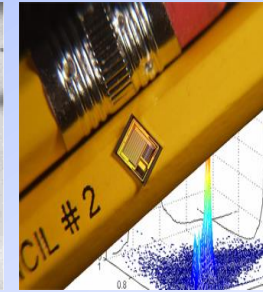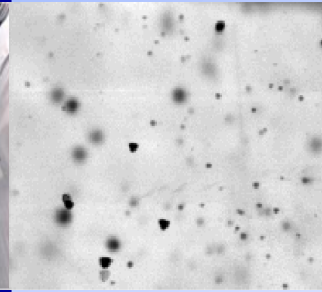
October 4, 2014

BNL Thrust : Advanced Radiation Detectors

Detector Projects → **Mission-critical and commercial outcomes**

Components and Systems
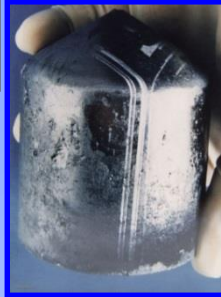
Our vision is to develop advanced radiation detection technology and translate discoveries into solutions for national security, safeguards, medical, synchrotron radiation, astrophysics, and science applications

Brookhaven Science Associates
U.S. Department of Energy

BROOKHAVEN
NATIONAL LABORATORY

Relevant Core Technologies/Competencies

- **Semiconductor Detectors**
  - Crystal growth
  - Pixel and strip detectors
  - ASIC and data acquisition systems
- **Gas, Liquid and Scintillator Detectors**
  - Time correlations in neutrons and gammas from fission events
  - Thermal neutron detectors
  - Fast neutron detectors
  - Calorimetry
  - Neutrino detection
- **System Integration**
- **National Nuclear Data Center**
- **Other Safeguards R&D and Outreach**
  - Close understanding of IAEA needs via International Safeguards Project Office
  - Information barriers for enrichment plants
  - Tools for analysis of chemicals using optical stand-off and other methods
  - Student intern program for Next-Generation Safeguards Initiative
  - Placement of IAEA Junior Professional Officers in Vienna

> Most experimental work at BNL's RHIC and NSLS-II facilities based on advanced particle and X-ray detector instrumentation

Brookhaven's Approach to Nonproliferation Solutions

Perform world-class, discovery and use-inspired science that impacts the nonproliferation mission

NSLS

CFN

NSLS II

BES

EBNN

LIFE SCI.
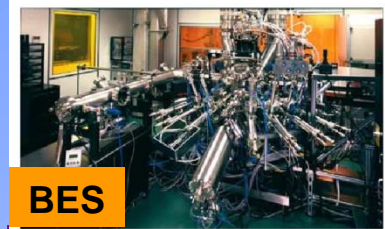
Facilities

R&D programs

Interdisciplinary team-oriented research

Collaborators

GAMMA/NEUTRON DETECTORS AND SYSTEM ADVANCES

Semiconductor, Gas, Scintillator, ASICs, Spectrometers, and Imaging/tracking systems

Fisk, SBU, Freiburg, UM, Charles U.,…

GE, RMD, eV, Redlen, SureScan, Hybridyne,…

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Thank You

BNL looks forward to working with the CVT!

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