LA-UR-16-28757
Approved for public release; distribution is unlimited.

Title:	DOE - BES Nanoscale Science Research Centers (NSRCs)
Author(s):	Beecher, Cathy Jo
Intended for:	Powerpoint shown to guests during tours of CINT at LANL
Issued:	2016-11-14

DOE - BES Nanoscale Science Research Centers (NSRCs)

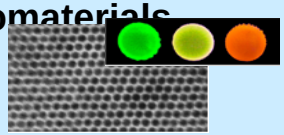
Center for Integrated Nanotechnologies

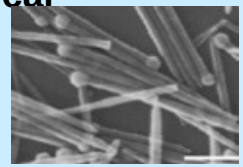
Two facilities one vision

World-class research capabilities - To establish the fundamental principles that underpin ***the integration of nanomaterials***; to provide scientific expertise and advanced capabilities for users to integrate nanostructured materials into systems; and to inspire technological innovation beneficial to energy, environment, human health, and security.

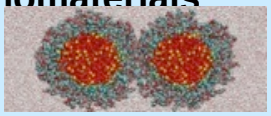
Averaging 500 users and 200 publications per year!

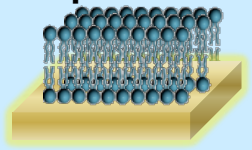
Nanophotonics & Optical Nanomaterials

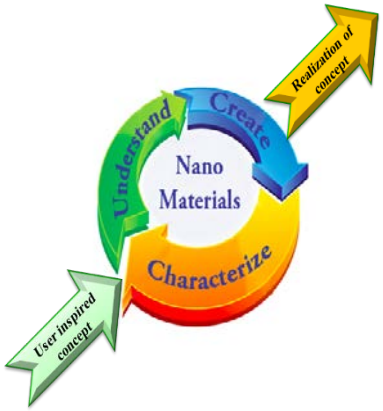




Soft, Biological, & Composite Nanomaterials

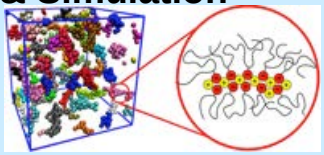






Nanoscale Electronics & Mechanics

Theory & Simulation

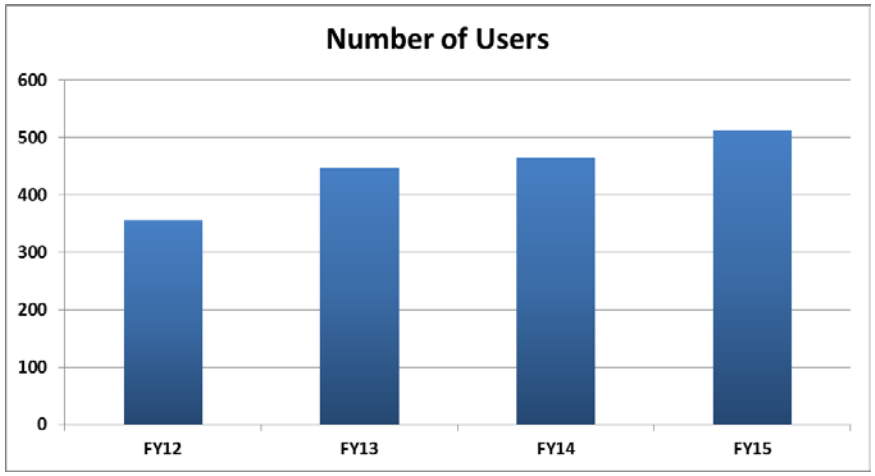


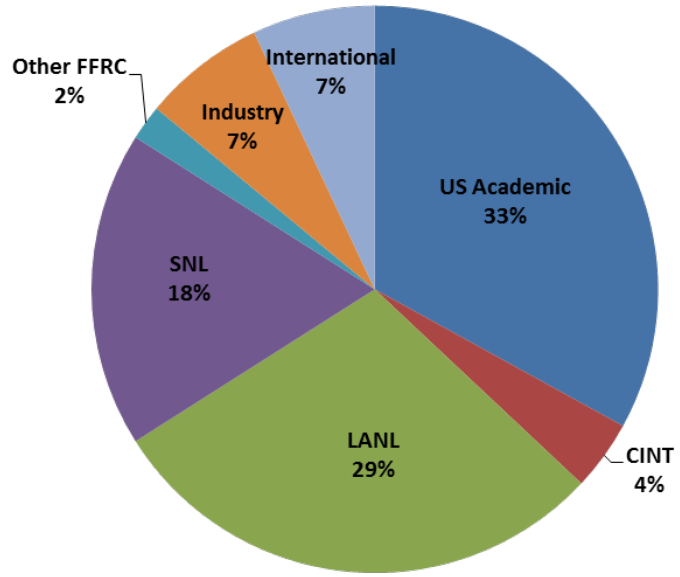
Los Alamos NATIONAL LABORATORY

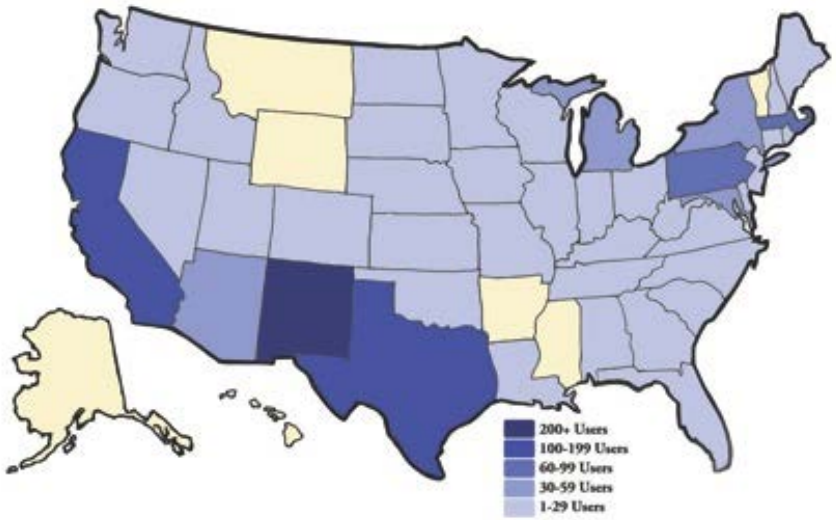
U.S. DEPARTMENT OF ENERGY | Office of Science

Sandia National Laboratories

CINT User Community







Los Alamos NATIONAL LABORATORY

U.S. DEPARTMENT OF ENERGY | Office of Science

Sandia National Laboratories

CINT's New Mexico Industrial Users

Actoprobe
AFM Instruments

SBA Materials Inc.

KNOWMTECH
Intelligent Machine Technology

TRILUMINA

Vista Therapeutics
Nanotechnology for Multiplex Biomarker Measurement

THE Orthopaedic CENTER
THE NORTHERN NEW MEXICO ORTHOPAEDIC CENTER

dnae

Qynergy
ENGAGE ENERGIZE EMPOWER

SENIOR SCIENTIFIC

SENSPEX
APPLIED SCIENCE & TECHNOLOGY

SKORPIOS TECHNOLOGIES

mesabiotech

STAR CRYOELECTRONICS

Think Strategically!
Technology Development Strategic Planning Export Control

Skinfrared
Engineering Medical Solutions

Los Alamos NATIONAL LABORATORY

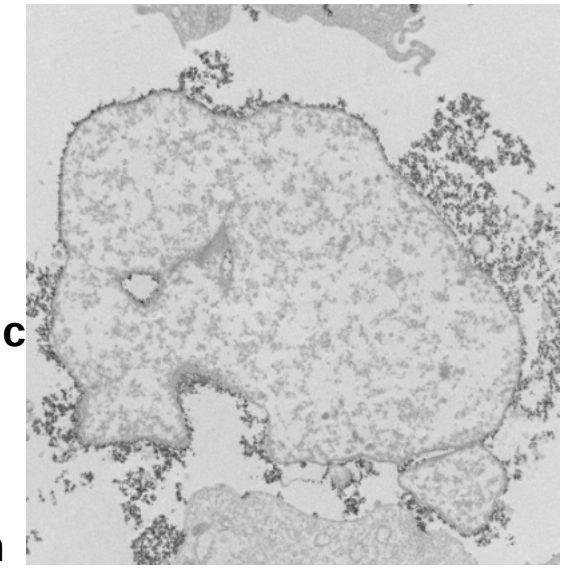
U.S. DEPARTMENT OF ENERGY | Office of Science

Sandia National Laboratories

Senior Scientific – CINT User

SENIOR SCIENTIFIC

Ed Flynn is devoting his career to tracking down cancer before it spreads.



- **Magnetic nanoparticles.**
- **CINT makes specialized nanoparticles, about 10,000 times smaller than a human hair, using magnetized iron oxide.**
- **These nontoxic nanoparticles are attached to cancer-specific antibodies and injected into the patient's body. The antibodies, with the hitchhiking nanoparticles, bind to receptors on the cancer cells.**
- **The nanoparticles—and consequently the cancer cells—can then be detected with specialized magnetic sensors (SQUID)**