



Brookhaven National Laboratory

Translating Discoveries to Market Deployment

STEAB

October 2012

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Technology Commercialization and Partnerships

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www.bnl.gov/techtransfer

BROOKHAVEN
NATIONAL LABORATORY

a passion for discovery



DOE Mission

Discover the Solutions that Power
and Secure America's Future

BNL Approach

Create discovery to deployment impact
from interdisciplinary research



RHIC I, II



CFN



NSLS I, II, JPSI



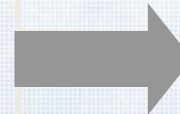
NY Blue

Facilities



**Core
programs**

Interdisciplinary
team-oriented
research



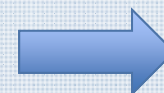
Science Challenges

- Energy Security
- Climate Change
- Origins of the Universe
- Accelerator Science/Detectors
- Human Health / Environment
- National Security

Collaborators, Users



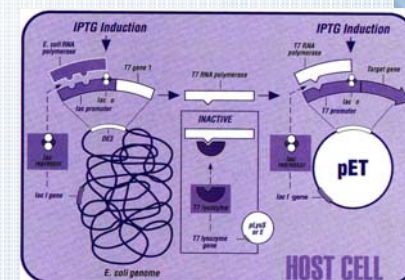
Moving Discoveries to Deployment



BROOKHAVEN

BNL Inventions - Changing the World

- World's First Video Game
- MAGLEV Transportation
- PET reagent ^{18}F FDG – Millions of health diagnoses per year
- L-DOPA – Used in the treatment of Parkinson's Disease
- High Temperature Superconductors - YBCO Fabrication
- T7 Protein Expression System for Biotech
- Integrated Positron Emission Tomography + Magnetic Resonance Imaging for medical diagnostics
- Small Animal Imaging Systems for health research
- RadioTin systems for Cancer Therapy
- Thermoelectric Power Generators (TEP)
- Core-Shell Electrocatalysts for Fuel Cells, Automotive and Chemical Process
- ... and many more!



Technology Commercialization and Partnerships

Walter G. Copan
Manager

C. Michael
Senior Administrative Assistant

Intellectual Property Legal Group*

D. Price, Lead
L. Husebo
M. Pacella, Paralegal
W. Russell, Paralegal

Technology Commercialization

W. Copan
Manager (Acting)

K. Elcess

C. Brakel

P. Upadhya

(Opening)

C. Condemi
Admin Specialist

Entrepreneurship & Economic Development

K. Elcess

SBU NYSBDC
+ Other
External Partners

Partnerships

M. Furey
Partnerships Manager

V. Coccorese
Admin Asst.

A. Schwarz

BNL Partnership
Coordinators

Matrixed Functions

BNL Proposal Center

Business and financial

Marketing and
communications

Economic development

Stakeholder relations

Industry and academic
partner relationships

*Co-located with TCP and Matrixed with Legal

Your resource for BNL Partnerships and Technology Transfer

BNL Go-to-Market Strategies

Accelerate Long Island

Economic Development

Technology Marketing

Launching new ventures

Entrepreneur Mentorship

Market Intelligence

New Business Partnerships

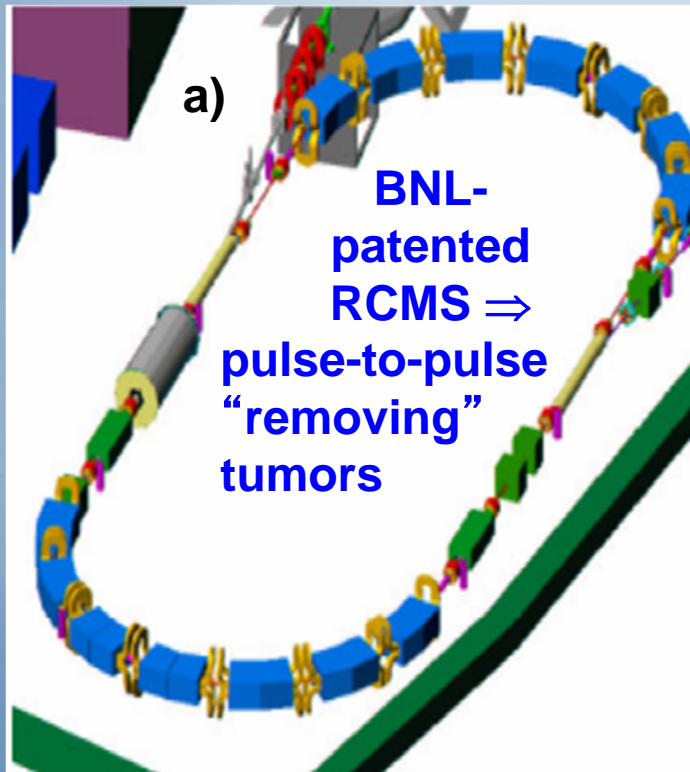
Maturation Funding

IP Exchange

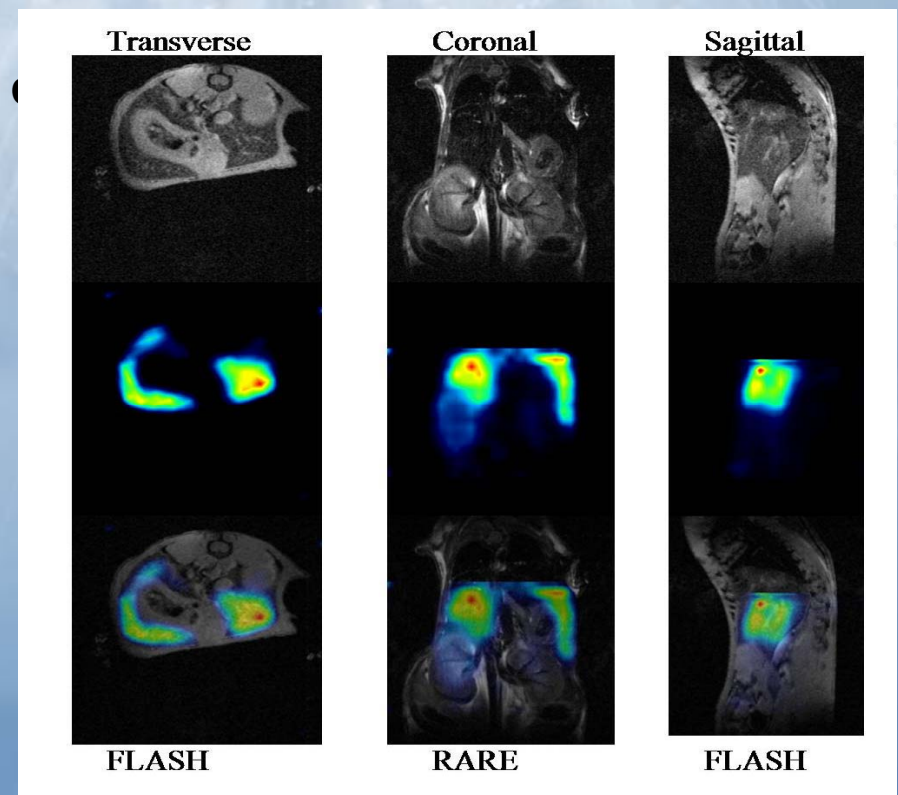
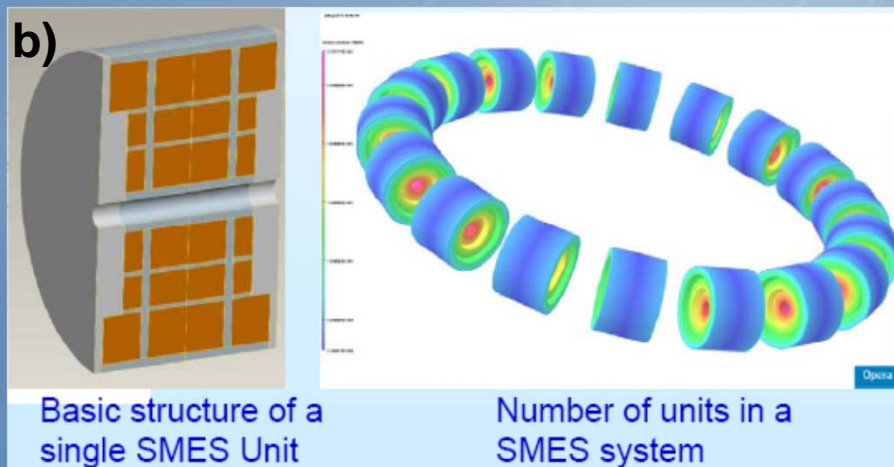
Incubation Access

Investor Forums
Angel Networks

Technological Impact Examples of BNL Nuclear Physics Research



- a) CRADA to develop ion Rapid Cycling Medical Synchrotron (iRCMS) with BEST Medical
- b) HTS magnet development expertise from BNL's work for NP accelerators critical in attracting ARPA-E grant for Superconducting Magnet Energy Storage (SMES)
- c) First combined MRI-PET imaging (on mouse liver) done with ^{52}Fe nanoparticles developed by BNL's radioisotope group



BNL IP Portfolio Facts

- 250+ Issued or Pending patents / Technologies
- 400+ Active License Agreements
- 80+ License Agreements producing products
- Inventions Commercialized ~35%
- **Commercialization with BNL**
 - Agreements are with Brookhaven Science Associates
 - Exclusive licenses require business plan, performance milestones and due diligence
 - Identify target applications / territories for commercialization opportunity development
 - Opportunities: Technology development and collaboration with BNL for technologies, products

Many new technologies available are featured on
BNL's website for commercial development:
www.bnl.gov/techtransfer

- Gene expression systems
- Radiotracers
- Bioimaging systems
- PET/MRI scanners
- ASICs
- Cancer diagnostics and therapies
- Antidepressants
- Radiation detectors
- Aerosol monitoring systems
- DNA-guided nanoparticle assemblies
- Catalysts for:
 - Making methanol from syngas
 - Novel cathodes and anodes in fuel cells
 - Direct methanol fuel cells ...
- Novel battery and energy storage technologies
- Superconductors
- CNT fabrication and uses
- Solar cell designs and compositions
- Thermoelectrics
- Waste remediation
- Etc.

Expanding Entrepreneurial Ecosystem

BNL – an Integral Role in NY & Long Island Innovation Infrastructure

ACCELERATE LI...

a committee of the LIA



Long Island Energy and Life Sciences Technology Opportunity Showcase with Special Guest Speaker Senator Charles Schumer

The Federal *Start-up America Initiative* offers special, limited opportunities for licensing ground-breaking technology from our national laboratories. For the remainder of 2011, Brookhaven National Laboratory and other national laboratories have cut fees for start-up option from as much as \$50,000 to \$1,000. As part of Senator Schumer's *Stay in NY* program, Accelerate LI has teamed up with Brookhaven National Laboratory to offer a unique look at the patents and technology opportunities that are available for commercialization and facilitate one-on-one dialogues with cutting-edge researchers at the Lab.

BROOKHAVEN
NATIONAL LABORATORY

STONY
BROOK
UNIVERSITY

CSH
COLD SPRING
HARBOR
LABORATORY



BROOKHAVEN NATIONAL LABORATORY

College & University Users



“There is no other place in the world at the moment where [my research] could have been done” - BNL User

Industrial, Non-profit & State Agency Users



Flexible Commercialization

- BNL creates technology 'seed corn' for a wide range of businesses
- Maturation investment moves from lab toward market
- BNL supports companies getting started through research collaborations
 - Commercial licensing of patented technologies
 - Research licenses
 - Software and other copyright licenses
 - Option agreements
 - Technology evaluation
 - Start-up businesses
 - Equity-based licenses

Flexible Partnerships with BNL

Research and Development Programs, Collaboration and Research Services

- Facility User Agreements (Open / Proprietary)
- Sponsored Research Programs
- “Work for Others” (WFO)
 - Research and Technical Services
- Cooperative Research and Development Agreements (CRADA)
- New! Agreements to Commercialize Technology (ACT)
- Consortia and Teaming

Agreements to Commercialize Technology (ACT)

- New DOE partnership mechanism
 - Created in response to industry and stakeholders
- Support wider range of Industry-Lab Partnerships
 - Complements WFO, CRADA and User Agreements
- Contractor can negotiate business-appropriate terms with third party clients in more flexible agreements
- Incentivizes labs / contractors to assume certain risks that U.S. Government entities cannot assume
- Contractor may choose to accept and share some risk in doing work for and/or with clients
 - payment terms, project deliverables, milestones, etc.
- Launching in FY2013
 - BNL will use ACT for selected projects

Terms	ACT	NF WFO	CRADA
Business terms	As negotiated between parties	Set WFO terms	Set CRADA terms
Pre-payment	As negotiated (contractor may advance funds)	Client pre-pays 60(90) days of project budget	Client pre-pays 60(90) days of project budget
Project deliverables	As negotiated (may agree milestones, timing, deliverables)	Best efforts	Best efforts
IP Rights	As negotiated; designated IP lead	IPR to funding client	Contractor grants FOU IP License option to client
Government Use License	Research Use only	Government Use License	Government Use License
Data rights protection	Protected 5 years (or more) but allows research use	Data belongs to funding client	Protected 5 years
Indemnification	As negotiated	Client indemnifies	Client indemnifies
Compensation	As negotiated	Best efforts budget	Best efforts budget

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 **Office of
Science**
U.S. DEPARTMENT OF ENERGY

