

Lab Embedded Entrepreneurship Programs

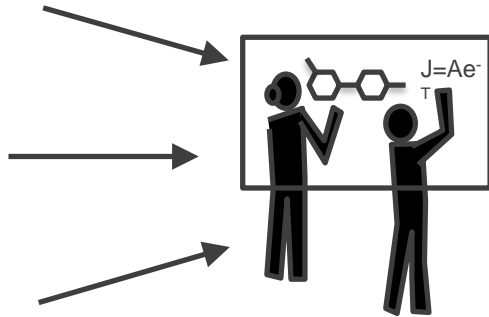
CYCLOTRON ROAD AMO Peer Review

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Washington, DC

June 13, 2017

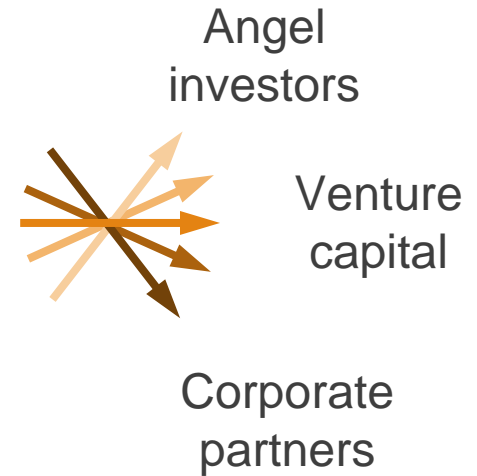
The Cyclotron Road Experiment



- ① **Spin-in** top entrepreneurial scientists from across the U.S.



- ② **Support** with world class facilities, expertise, and mentorship



- ③ **Position** people and new technologies for market

PILOT RESULTS

NEW PRODUCTS

All six teams built a first prototype or secured the funding to do so.

NEW JOBS

Six companies supporting 30+ high tech manufacturing jobs

NEW FUNDING

\$15M+ in new foundational research funding and private investment

NEW RESEARCH

4+ joint publications in progress, 5+ joint patent apps and inventions

NEW NETWORKS

300+ visitors to Cyclotron Road in 2016, ~45% industry and investors

SCIENTIFIC
AMERICAN

nature
energy

physics
today

cyclotronroad

- 1st Cohort (5 Teams) launched Jan-March
- 2 CRADAs Executed (5/26), all done by end of June
- Teams embedded in core lab programs
 - Chemistry, Transportation, Biology, Nuclear Engineering, Nanoscience
- Lab PIs actively engaged. Introducing innovators to new collaborators in lab and industry
- Argonne manufacturing initiative to provide new PI/innovator collaboration opportunities



Showcase booth at EarthX TX on new diesel engine technology enabling diesel engines to run on alternate fuels increasing power and efficiency



Designing radioisotope batteries in the Nuclear Division.



Bottom: ABC interview about plasma-injected combustion R&D in the Distributed Energy Research Center.

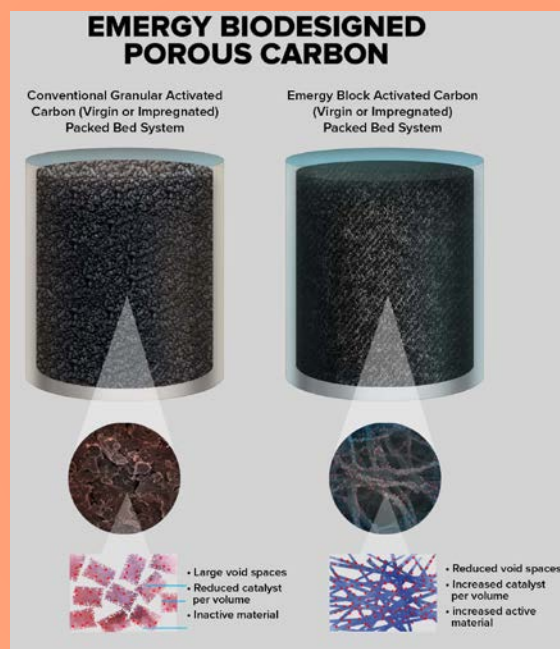
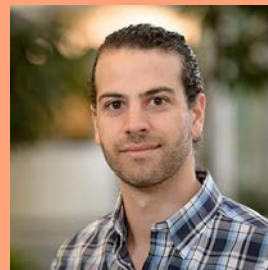
CRI IS PART OF THE CHICAGO INNOVATION ECOSYSTEM

- Attracting early stage energy innovators from across the nation to the Midwest
- Accelerating technology & business development to encourage innovators to launch ventures in the Chicago region
- Enabling collaborations with industry



EARLY SUCCESS EXAMPLE: EMERGY

- **Mid-January:** Joined CRI at Argonne
 - Early stage R&D of biodesigned activated carbon
 - New energy efficient manufacturing process
- **April:** Newmont Mining requested pre-commercial prototype (summer)
- **April:** Ausenco Engineering interested in distribution if Newmont licenses tech
- **May:** Growing carbon in ANL lab



Why the name?

INNOVATION
CROSSROADS

- ORNL is the only major DOE National Laboratory in the Southeast
- We have long-standing partnerships with the region's top research universities
- ORNL has an excellent track record of collaborating with industry
- We have been a leading architect of the region's entrepreneurial ecosystem
- We are the perfect place to lead an early stage entrepreneurial program in energy in the Southeast



An Early Stage Entrepreneurial Program in Energy

Our Early Progress Report:

- Cohort 1 kicked off on May 8th
- 4 innovators working on 3 projects: great fits with ORNL capabilities
 - Advanced Reactor Design
 - Low-cost production of carbon nanotubes at CNMS
 - Innovative waste heat recovery process
- Each team has already selected an ORNL PI, CRADAs under development
- Internships established through the UT Breddesen Center to assist with market research and customer discovery
- Business Mentoring partnership established with LaunchTN and TAEBC
- Innovators pitched last week at Launch TN's 36|86 Conference

