

Impulse: Special Edition  
December 2016

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Friends and colleagues,

Our first Cohort of innovators will be graduating from Cyclotron Road over the next few months, bringing the pilot phase of our experiment to a close. As we approach this milestone, our team has been reflecting on what we've accomplished, working to understand what we've learned, and sharpening our focus for the next chapter.

These discussions have converged on a renewed clarity of mission for our team: empowering science innovators to go from concept to first product and positioning them for broad societal impact. Our vision is for Cyclotron Road to be the example of excellence for early-stage science innovation and a magnet for the scientists and engineers who are most driven to advance transformative technologies. Looking forward, we'll be focused on making Cyclotron Road the best possible home for these people.

**With that in mind, read on below for three reasons that we're fired up headed into 2017.**

We hope that this vision excites you as much as it does us, and that you'll stay engaged with our effort in the coming months and years. And if what you read below is something you'd like to help us build, please contact us to explore how you can best get involved.

Lastly, our team is continually thankful for the opportunity to pursue this vision based on foundational support from Berkeley Lab and the DOE EERE Advanced Manufacturing Office. We're excited to keep working with our partners at DOE in the next phase of this effort.

Onward,

P.S. Like most months, a lot has happened since our last newsletter. [Check out the latest news from Cyclotron Road on our website.](#)

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## **Reason 1: Science innovation and hard tech are more important than ever.**

We firmly believe that new technologies rooted in the physical and biological sciences will be fundamental to addressing the 21st century's biggest challenges in energy, water, food, and health. We're excited to be testing a new model to move these technologies from idea to impact and we hope that our efforts will inspire many more experiments to facilitate that process.

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## **Reason 2: Cyclotron Road is working.**

Recruit best-in-class scientists and engineers, empower them to go from concept to viable first product, and position them on a path to market. In its purest form, this is the strategy we set out to test in our pilot program. We recruited eight innovators across six teams and gave them a small amount of funding, access to Berkeley Lab's world-class tools and expertise, and mentorship from our program team and network for two years.

Cohort 1 has made astonishing progress in this environment. They've made scientific discoveries, scaled materials from flasks to giant reactors, broken world records, found markets, and signed customers. Most importantly, we've built them a bridge to public and private funding that will support their efforts beyond our program. One hundred percent of Cohort 1 teams have built a first prototype or secured the financing to do so during the program.

The obvious question is: "to what end?" This is the long-term experiment that's at the heart of Cyclotron Road. Time will tell whether transformative support at this early stage leads to bigger impact in the long run. Our ultimate success will be measured on the scale of gigawatts, tons of CO<sub>2</sub>, billions of dollars, and millions of lives.

In the near-term, we're encouraged to see that the private sector is getting engaged. We recently announced the formation of our [Leadership Council](#), a group of 22 luminaries from across the innovation ecosystem, including some of the world's biggest companies. Their involvement is an important indicator that we're putting our teams on a viable path and their guidance will keep us honest as we march forward.

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We're currently in the process of reviewing applications for Cyclotron Road Cohort 3. For the third year in a row, over 100 aspiring energy innovators from across the country threw their hats in the ring. One thing is certain: there is no shortage of talented scientists and engineers looking to devote their lives to making an impact with technology.

Knowing this, we see our biggest opportunity in continuing to build upon the foundation we've established here at Berkeley Lab. We're excited to begin that process over the next year with the support of the California Energy Commission and our industry partners.

**cyclotronroad**

## A HOME FOR HARD SCIENCE INNOVATORS

**Our mission is to empower the World's top hard science innovators to advance their ideas from concept to viable first product.**

**OVERVIEW:** Launched as a pilot program in July 2014, Cyclotron Road provides innovators with a living stipend, access to Berkeley Lab, and intensive mentorship for two years. The pilot cohort (Cohort 1) of eight innovators across six teams started in early 2015. Cyclotron Road is a program of Berkeley Lab supported by the DOE EERE Advanced Manufacturing Office.

## FROM CONCEPT TO FIRST PROTOTYPE

### Cohort 1 Results as of December 2016

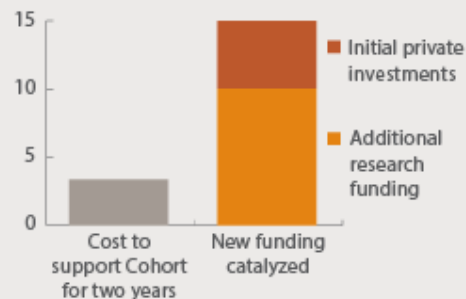
**PROTOTYPES:** 100% of teams have built a first prototype or secured funding to do so

**JOB:** 25 high tech manufacturing jobs already supported by new companies founded by CR innovators

**FUNDING:** Cohort 1 has catalyzed over \$15 million of additional research funding and initial private investments

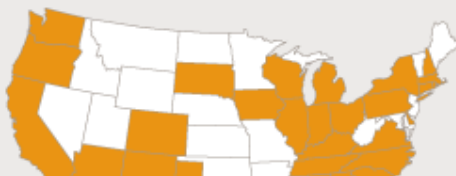
**RUNWAY:** All teams are funded for their next stage of development beyond the program

Top innovators + world-class R&D support:  
A catalyst for public and private investment



## NATIONWIDE DEMAND

### Applicants from 32 U.S. States



## TRANSFORMATIVE IDEAS

Cyclotron Road innovators are addressing major industrial markets, including:

**ADVANCED MANUFACTURING:** Tougher 3D printed parts; Faster carbon fiber production

**CHEMICALS & FUELS:** More efficient chemical separations; Lower-carbon chemicals and fuels

- Home states of applicants for Cyclotron Road Cohorts 1, 2, and 3

diagnostics

**POWER GENERATION:** Compact solid-state generators; Ocean wave energy

## INDUSTRY ENGAGEMENT

### Our Leadership Council

#### INDUSTRY

Om Nalamasu, Applied Materials  
 Nazeer Bhore, ExxonMobil R&E  
 Liesl Schindler, Royal Dutch Shell  
 Brian Holloway, Lockheed Martin  
 John Wall, Cummins (ret.)  
 Jeffrey Carbeck, Deloitte  
 Todd Johnson, Jones Day

#### ACADEMIA

Arun Majumdar, Stanford University  
 Eric Toone, Duke University  
 Paul Alivisatos, UC Berkeley

#### FINANCE

Gabriel Kra, Prelude Ventures  
 Nancy Pfund, DBL Partners  
 Carmichael Roberts, North Bridge  
 Hemai Parthasarathy, Breakout Labs  
 Hal Harvey, Energy Innovations  
 Tom Baruch, Baruch Future Ventures

#### ENTREPRENEURSHIP

Cody Friesen, Zero Mass Water  
 Danielle Fong, Lightsail Energy  
 Joel Moxley, Foro Energy  
 Gia Schneider, Natel Energy

13-CR-2034



**BERKELEY LAB**

U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
 Renewable Energy

ADVANCED MANUFACTURING OFFICE

**ACTIVATION**  
 ENERGY



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