

CYCLOTRON ROAD

Executive Overview

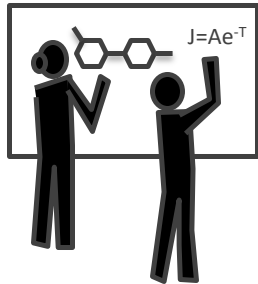
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Founding Director

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Why Cyclotron Road?

Today's R&D institutions are not well-structured to support translation of hard science concepts into new products



Academic R&D

Industry R&D

Startup R&D

???

The biggest gap is support for research aimed at proving that new science can yield a viable first product

“

Today, our highly optimized, venture-capital-driven innovation system is simply not structured to support complex, slower-growing concepts that could end up being hugely significant--

the kind that might lead to disruptive solutions to existential challenges in sustainable energy, water and food security, and health

”

- L. Rafael Reif
President, MIT



“

the United States needs a more systematic way to help its bottled-up new-science innovators deliver their ideas to the world.

”

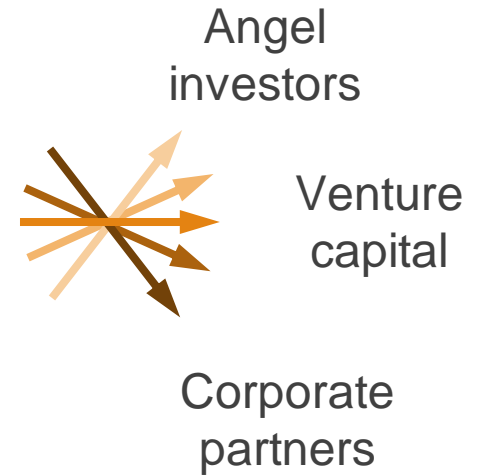
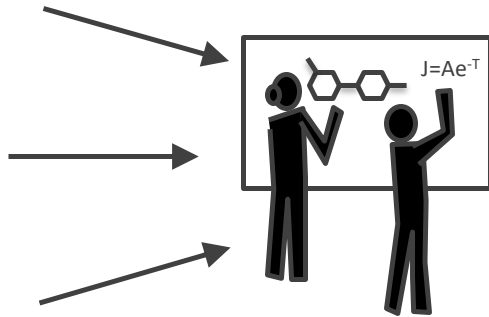
- **L. Rafael Reif**
President, MIT



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What is Cyclotron Road?



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

Program Details



Support with world class facilities, experts, networks, and experience

INNOVATOR SUPPORT

Runway

- 2 year entrepreneurial research fellowship: living stipend, health insurance, and travel allowance

Labs

- Cross-cutting access as a Berkeley Lab affiliate and \$100k toward initial Lab work. Innovators retain ownership of their IP.

Mentorship

- Intensive hard tech entrepreneurship mentorship, training, and connections from Cyclotron Road team and network

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

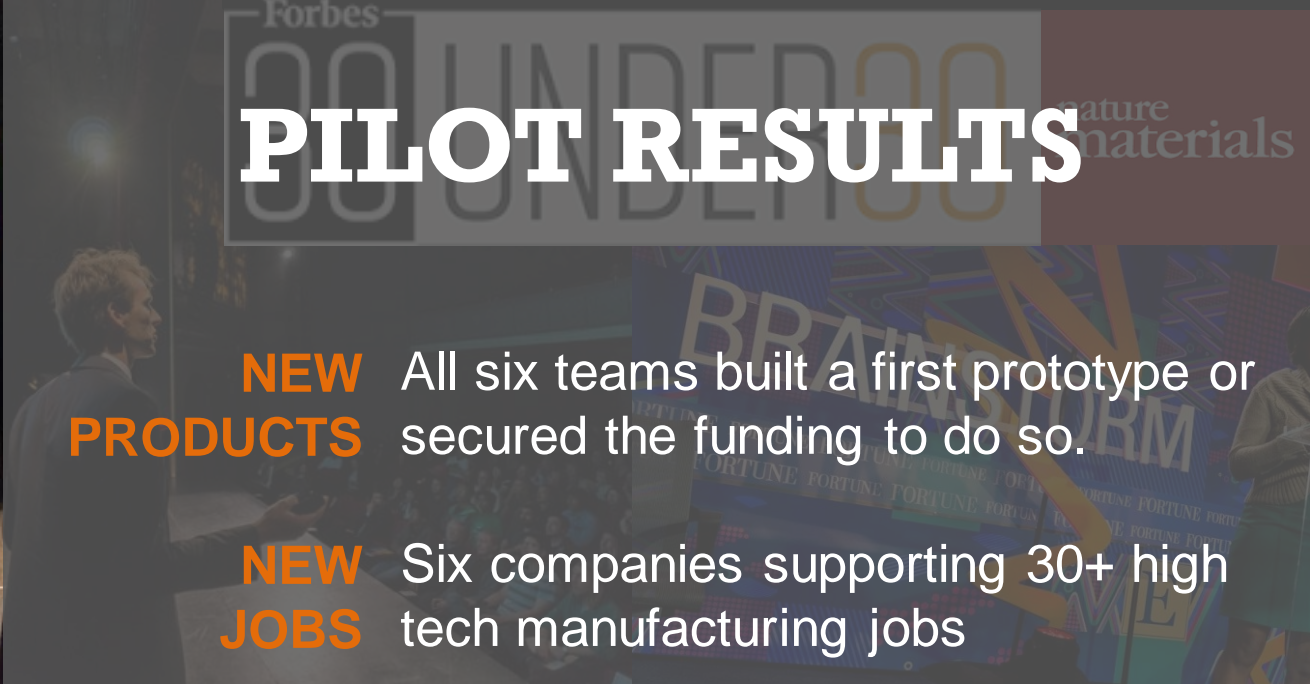
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MIT Technology Review

INNOVATORS UNDER 35

Climate Green

The New York Times



COHORT I

(2015-2017)

OPUS 12 electrochemical CO₂ to fuel

CALWAVE next generation wave power

POLYSPECTRA photo-activated polymers for 3-d printing

SPARK thermionic heat engine on a chip

MOSAIC materials for industrial gas separations

VISOLIS bio-based production of carbon-negative, high-performance polymers



Kendra Kuhl
OPUS 12



Etosha Cave
OPUS 12



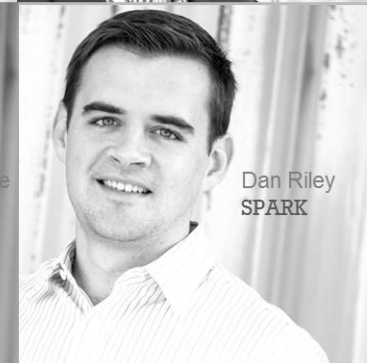
Marcus Lehmann
CALWAVE



Ray Weitekamp
POLYSPECTRA



Jared Schwede
SPARK



Dan Riley
SPARK



Tom McDonald
MOSAIC



Deepak Dugar
VISOLIS

Cyclotron Road Cohort II

(2016-2018)

MALLINDA fully reshapeable and recyclable polymers

IRIS PV ultra-high efficiency perovskite tandem solar cells

SYNVITROBIO cell-free platform for rapid bio-discovery

FEASIBLE diagnostic imaging technology for safer and cheaper batteries

SEPION nanoporous polymer separators for high energy batteries

CUBERG solid state materials for ultra-low cost, high energy density batteries



Cyclotron Road Cohort III

(2017-2019)

DAUNTLESS: Addressing complex physical systems with real-time machine learning control solutions.

MARIGOLD: Providing distributed base-load and renewable power based on advanced thermo-photovoltaics

NELUMBO: Rethinking cooling with the world's most advanced meta-material coating for heat exchangers

HELUX: Shrinking the challenges associated with reliable and secure IoT control and communications

TREAU: Dropping AC energy and cost by 50% by developing new polymer based heat exchangers and near-isothermal compressors

PHOTIA: Manufacturing 3D nanostructures for the masses

MICROBYRE: Enabling cost-effective carbon negative materials by teaching old bacteria new tricks

LAMINERA: Conforming next generation electrical devices to meet society's needs with synthetic metals

ASTRILEUX: Reducing the cost and energy intensity of EUV lithography by 20X





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