

Research Updates

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Vice President for Research

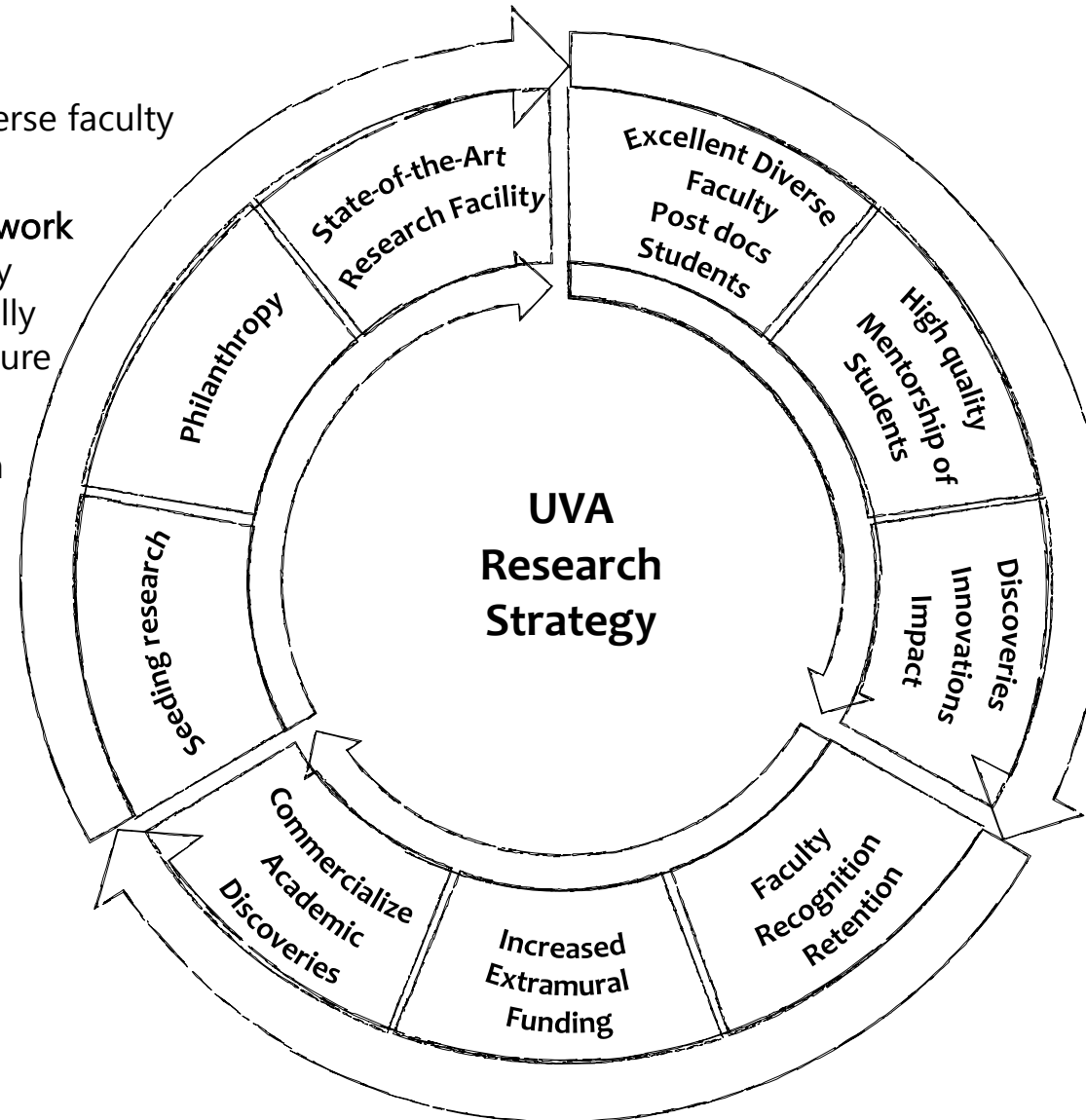


Vision for Research

Vision: UVA will be widely recognized as a preeminent research institution generating sustained excellence in research and scholarship and for its culture of seamlessly integrating cutting-edge research thinking into student education.

UVA Strategy for Research From Prominence to Preeminence

- Recruit and retain excellent diverse faculty
- Enable faculty and students to work across traditional boundaries by "seeding" research & strategically investing in research infrastructure
- Catalyze distinct priority areas of research where we can be an international leader
- Make it easier for faculty and students to commercialize their academic discoveries and intellectual property
- Impact on the World - serve the public

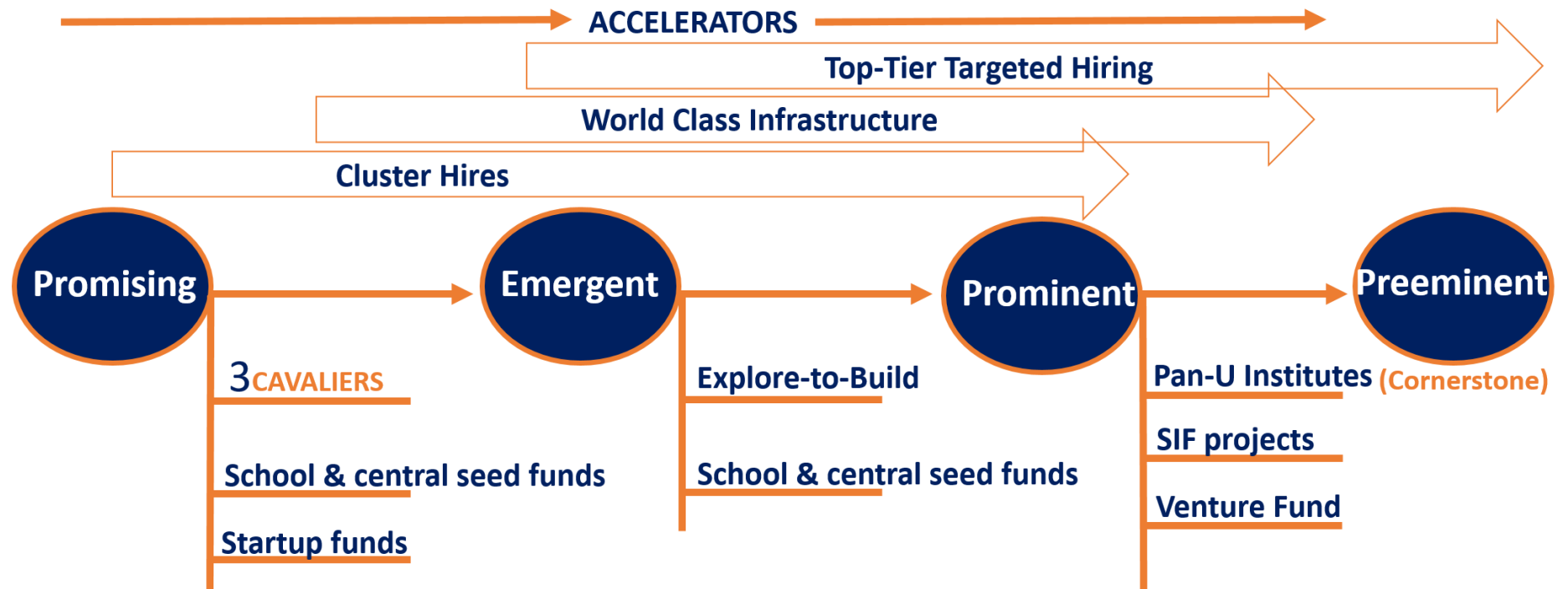


- Increase significantly UVA's sponsored research activity via research development, an enabling infrastructure that supports faculty
- Provided comprehensive research administration service and support during another record-setting year for extramural research proposals submission and funding
- Provide excellent animal husbandry, accurate animal health observations, effective veterinary technical support and care of research animals
- Ensure UVA research compliance; research data security; foreign influence assessment and compliance; Export and sanction compliance

A "virtuous cycle" of preeminence

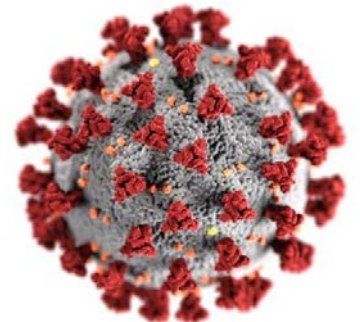
Seed Funding with a Strategy

Developing strategic research initiatives aimed at promoting collaboration across schools that leverages the unique knowledge and expertise of UVA faculty to produce new, sustainable research to address societal grand challenges



Research During COVID

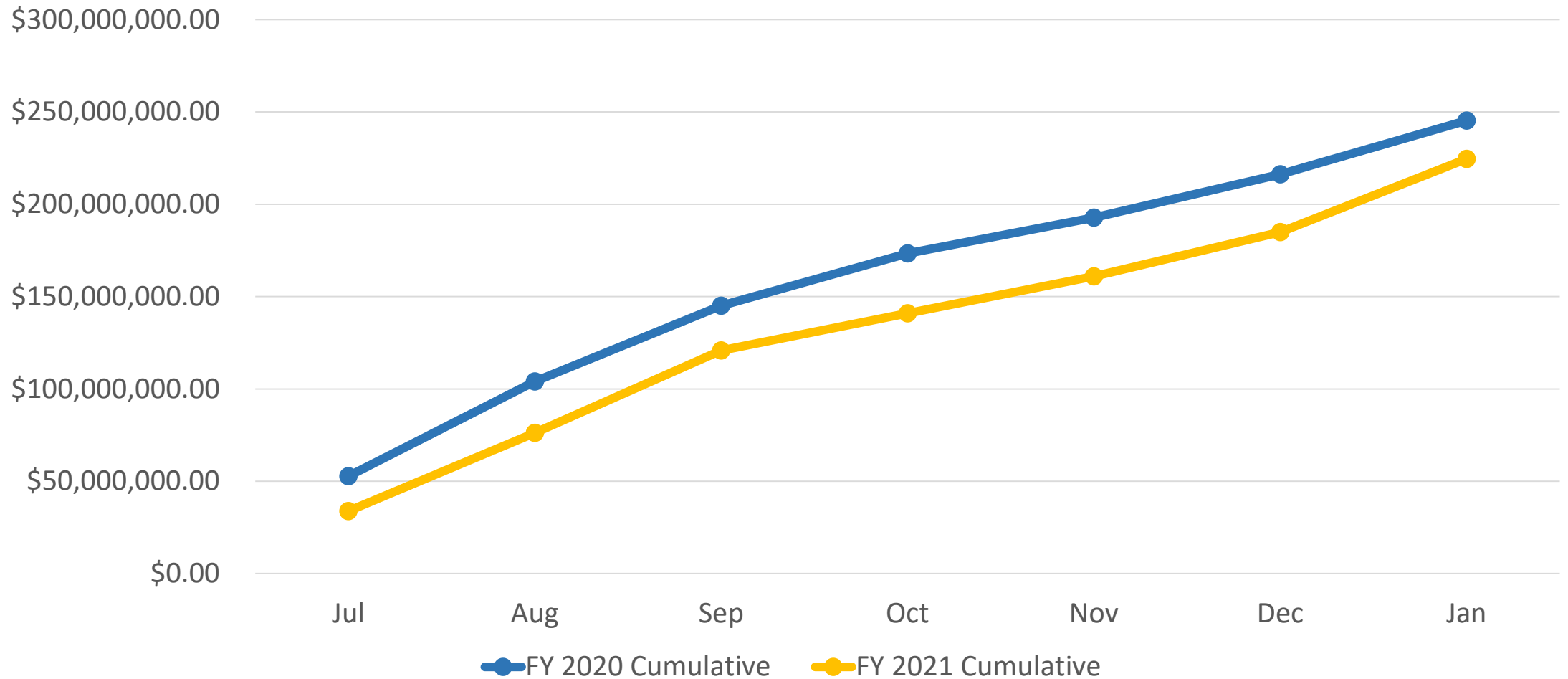
- Researchers have been outstanding in following and enforcing safety protocols
 - Safely ramped up research density
 - Still maintaining research productivity
- PCR saliva testing required weekly for all on-grounds research staff
 - Quick identification and quarantining of COVID-19 positive staff
 - New face masks provided to researchers at saliva collections stations
- Received two generous gifts to support COVID-19 translational research
 - Manning and Ivy Programs
 - Results forthcoming



Research Proposals and Awards: FYTD Comparisons

	2020 July 1-Jan 31	2021 July 1 - Jan 31
Proposals Submitted #	1592	1545
Proposal Amount \$	\$1.05B	\$1.01B
Awards Received #	1388	1359
Awards Received \$	\$245M	\$224M
Expenditures \$	\$257M	\$245M

Cumulative Research \$ FY20 vs F21



NSF HERD Survey Research Ranking

UVA Research Expenditures			
Year	Total R&D	Federal	HERD Rank
2019	\$613,938	\$276,335	44
2018	\$ 551,761	\$250,168	46
2017	\$ 469,682	\$ 228,910	51
2016	\$ 397,458	\$ 210,980	56
2015	\$ 373,218	\$ 203,401	62
2014	\$ 358,576	\$ 205,865	61

Select Research Awards & Accomplishments

- National Academy Memberships: 3
- NSF Career Awards: 10
- *Nature* authors: 6
- *Science* authors: 2
- Guggenheim Fellows: 3
- Fellows of the AAAS: 4
- DARPA Young Faculty Awards: 3
- Institute of Electrical and Electronics Engineers Fellows: 2

Research Awards 2020

UVA HONORS DISTINGUISHED RESEARCHERS AT VIRTUAL AWARDS EVENT



Photo by Sanjay Suchak, University Communications

January 29, 2021 • Meredith Cole, msc6y@virginia.edu

- Research Excellence Award
- Distinguished Researcher Award
- Research Collaboration Award
- Research Mentor Award
- Public Impact-Focused Research Award

Jung-Bum Shin

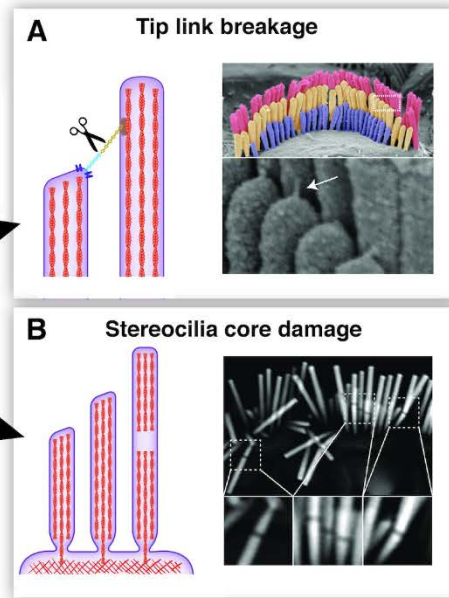
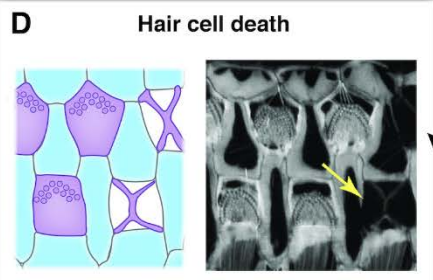
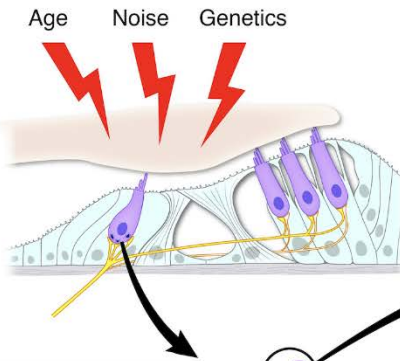
Associate Professor, Neuroscience
School of Medicine



Understanding and Preventing Hearing Loss

Problem:

Sensory hair cells, the auditory receptors of the inner ear, are damaged by age, noise and genetic factors, causing hair cell degeneration and hearing loss



Solution:

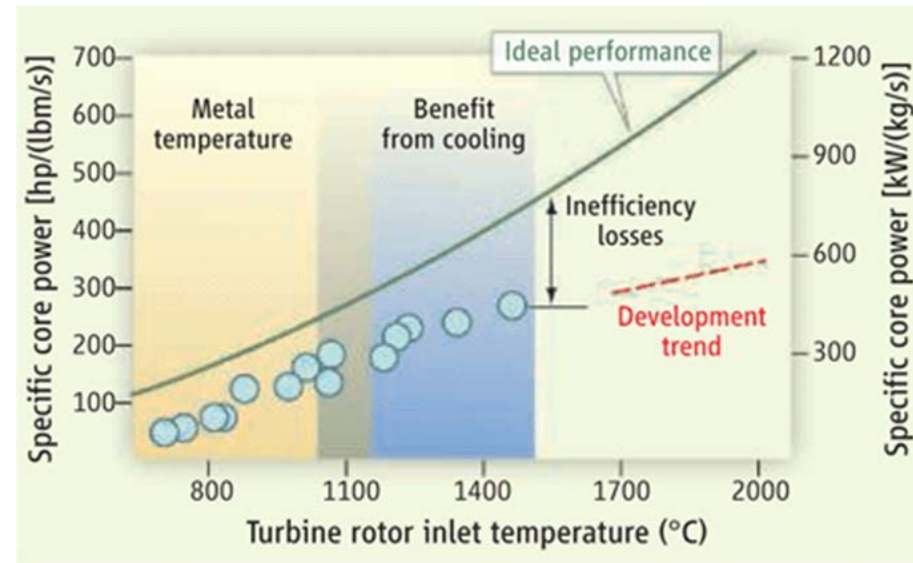
- Identify pathways of hair cell damage
- Define mechanisms of hair cell repair and maintenance
- Develop strategies to prevent and treat hearing loss

Elizabeth Opila

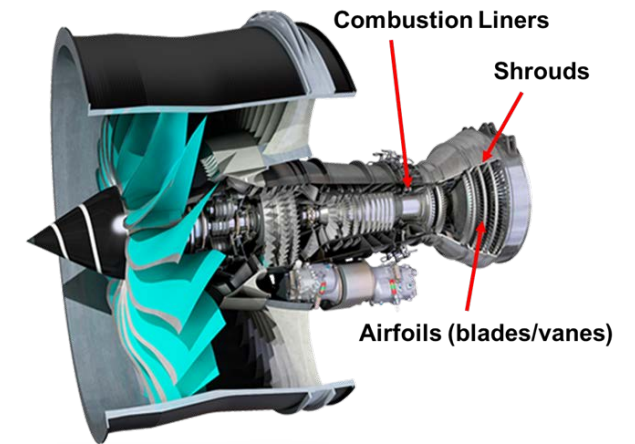
Professor, Materials Science Engineering, Director, Rolls-Royce University Technology Center on Advanced Material Systems, School of Engineering & Applied Science



- High Temperature Materials for Extreme Environments
- Corrosion and Electrochemical Sciences and Engineering
- Advanced Materials for Transportation Applications



Perepezko, J. H. (2009). The hotter the engine, the better. *Science*, 326(5956), 1068-1069.



Rolls-Royce Turbofan
rolls-royce.com

Improving engine efficiency with higher temperature materials

Jay Shimshack

Associate Professor Policy & Economics and Associate Dean for Academic Affairs
Frank Batten School of Leadership and Public Policy

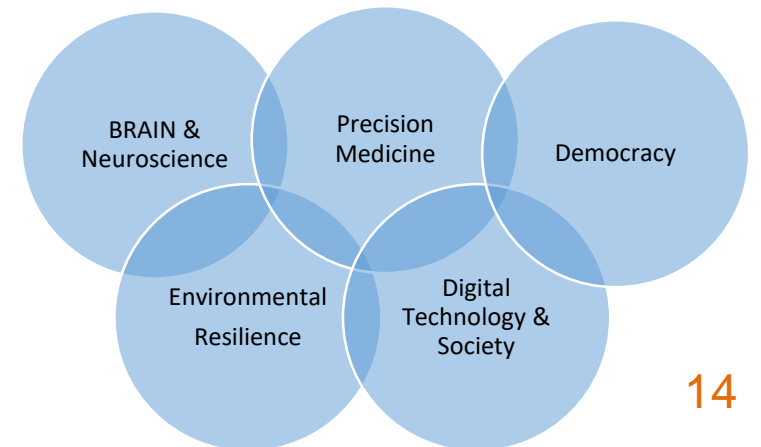


“Disparities in air pollution in the US”

- Air pollution has fallen substantially in the past four decades, but relative disparities persist.
 - The most polluted areas in 1981 are still the most polluted areas.
 - The least polluted areas in 1981 are still the least polluted areas.

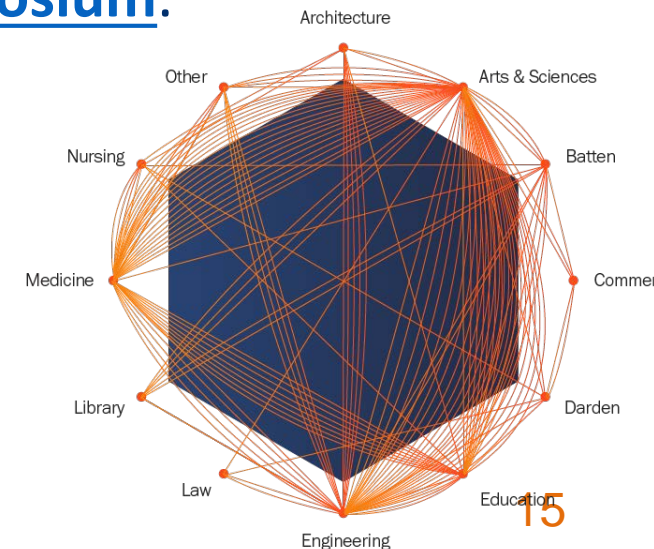
New SIF STEM Investment RFP

- 2030 Plan outlined ten key initiatives to achieve our strategic goals
- A new \$15M investment designed to operationalize pathways to research preeminence focused on STEM centric initiatives - announced
- Goal is to provide resources to advance any initiative(s) that will move us from prominence to preeminence across the five research focus areas
- Emphasizes multi-disciplinary projects that have strong scientific merit, respond to an identified societal need in the key research areas, and demonstrate technical and managerial readiness for implementation



Three Cavaliers (3C) Second Round Investment

- The 3Cavaliers program unites three faculty members from disparate disciplines working on new early stage interdisciplinary research ideas
- In 2018, the program awarded seed grants ranging from \$15,000 to \$60,000 toward 77 projects, involving 231 researchers, as well as 270 graduate and undergraduate students and 25 postdocs
- These projects ranged from energy storage to antibiotic resistance to compassionate schools, and were featured in a [3Cavaliers Symposium](#).
- 3Cavaliers participants have received approximately \$5.7 million in outside funding, produced more than 70 journal articles, and 100 conference papers and three new invention disclosures



Questions?