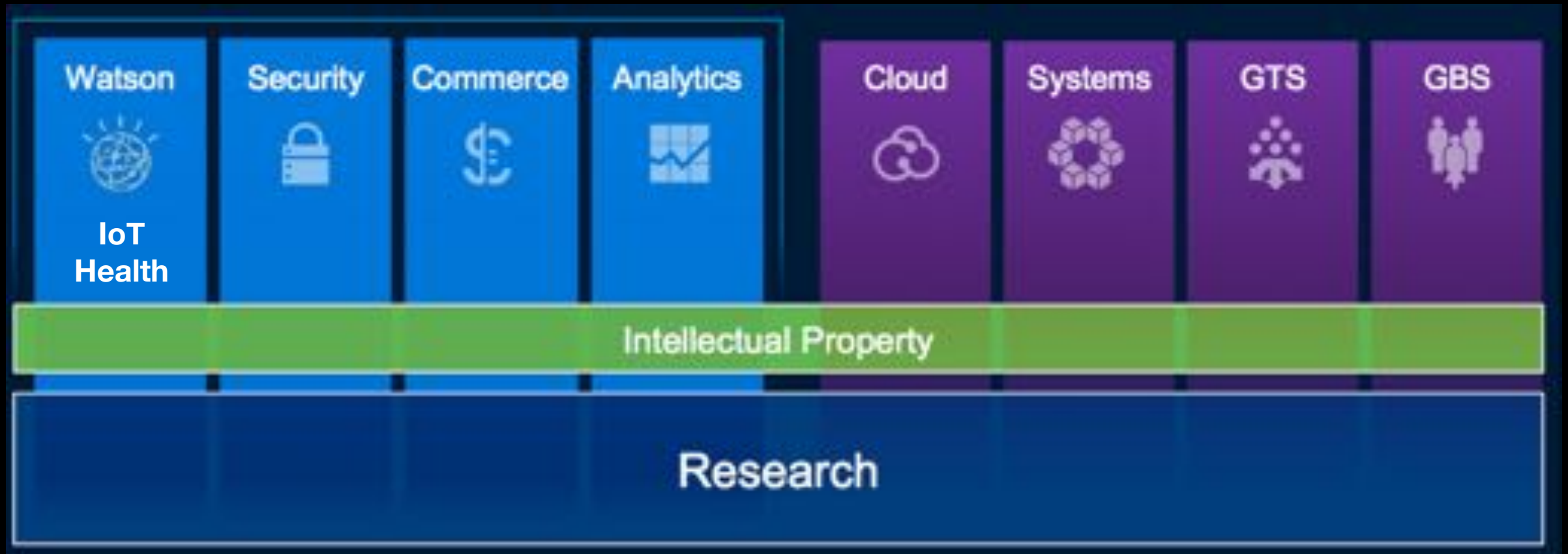


IBM Research: From Atoms to Qubits to Big Data Analytics

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Transforming IBM into the “*Cognitive Solutions and Cloud Platform*” Company



World Class Global Capability: 3,000 Scientists



Six Nobel Laureates



Ten Medals of Technology



Five National Medals of Science



Three Kavli Laureates



Six Turing Awards



69 Members



123 IEEE Fellows



28 ACM Fellows



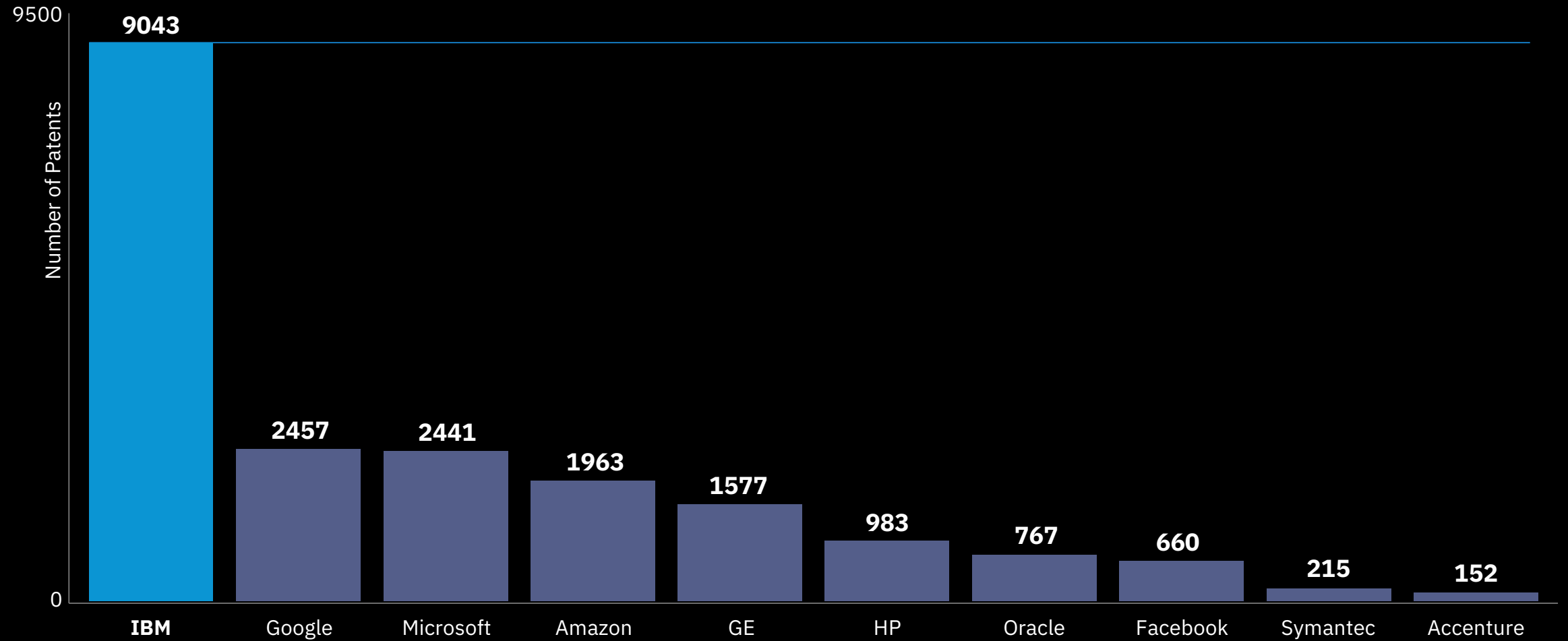
99 Active IBM Fellows



IBM invested \$ 5.7B on R&D in 2016

25 Years of Patent Leadership

IBM vs. competition



Collaborating across a diverse range of core disciplines

Behavioral Science



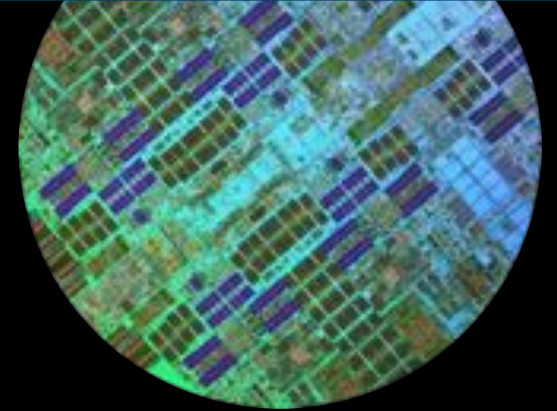
Chemistry



Computer Science



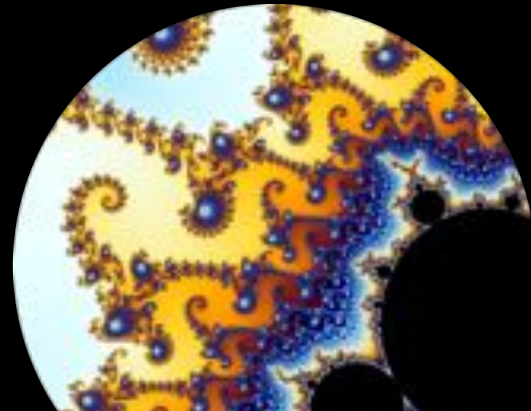
Electrical Engineering



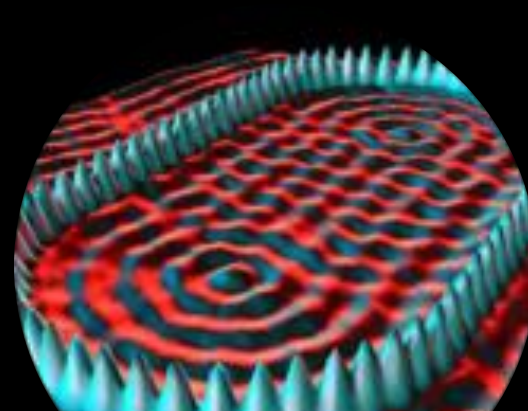
Materials Science



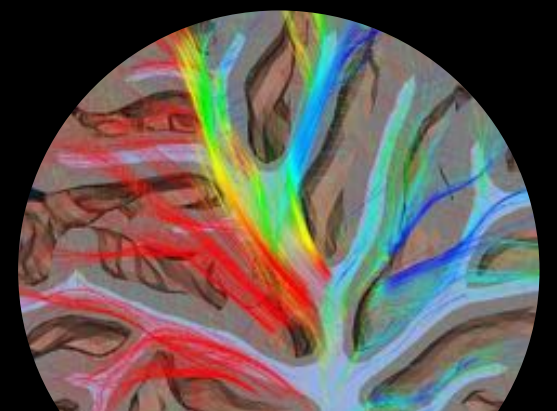
Mathematical Science



Physics



Computational Biology

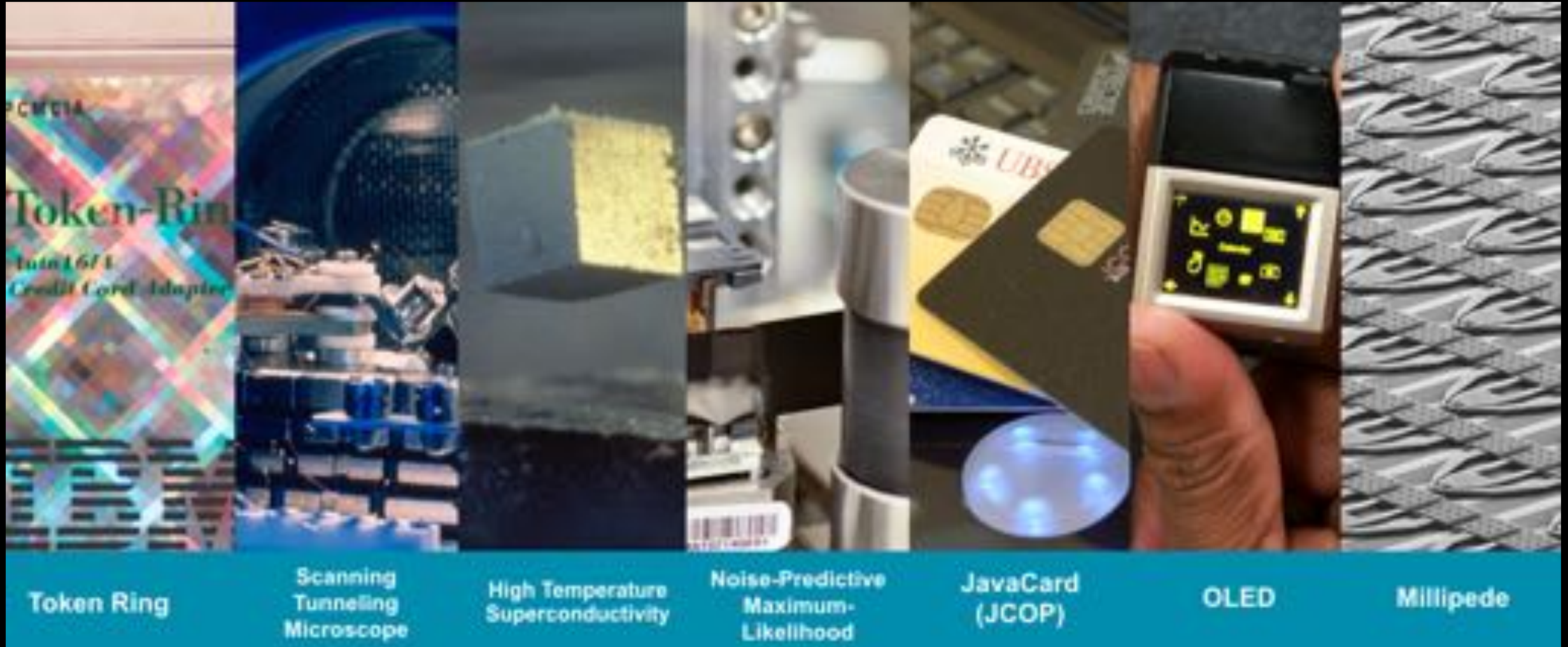


IBM Research – Zurich

- Established in 1956
- 45+ different nationalities
- Open Collaboration:
 - Horizon2020: 50+ funded projects and 500+ partners
- Two Nobel Prizes:
 - 1986: Nobel Prize in Physics for the invention of the scanning tunneling microscope by Heinrich Rohrer and Gerd K. Binnig
 - 1987: Nobel Prize in Physics for the discovery of high-temperature superconductivity by K. Alex Müller and J. Georg Bednorz
- 2017: European Physical Society Historic Site
- Binnig and Rohrer Nanotechnology Centre opened in 2011 (Public Private Partnership with ETH Zürich and EMPA)
- 7 European Research Council Grants



Major Historic Accomplishments



Engaging with IBM Research in new ways



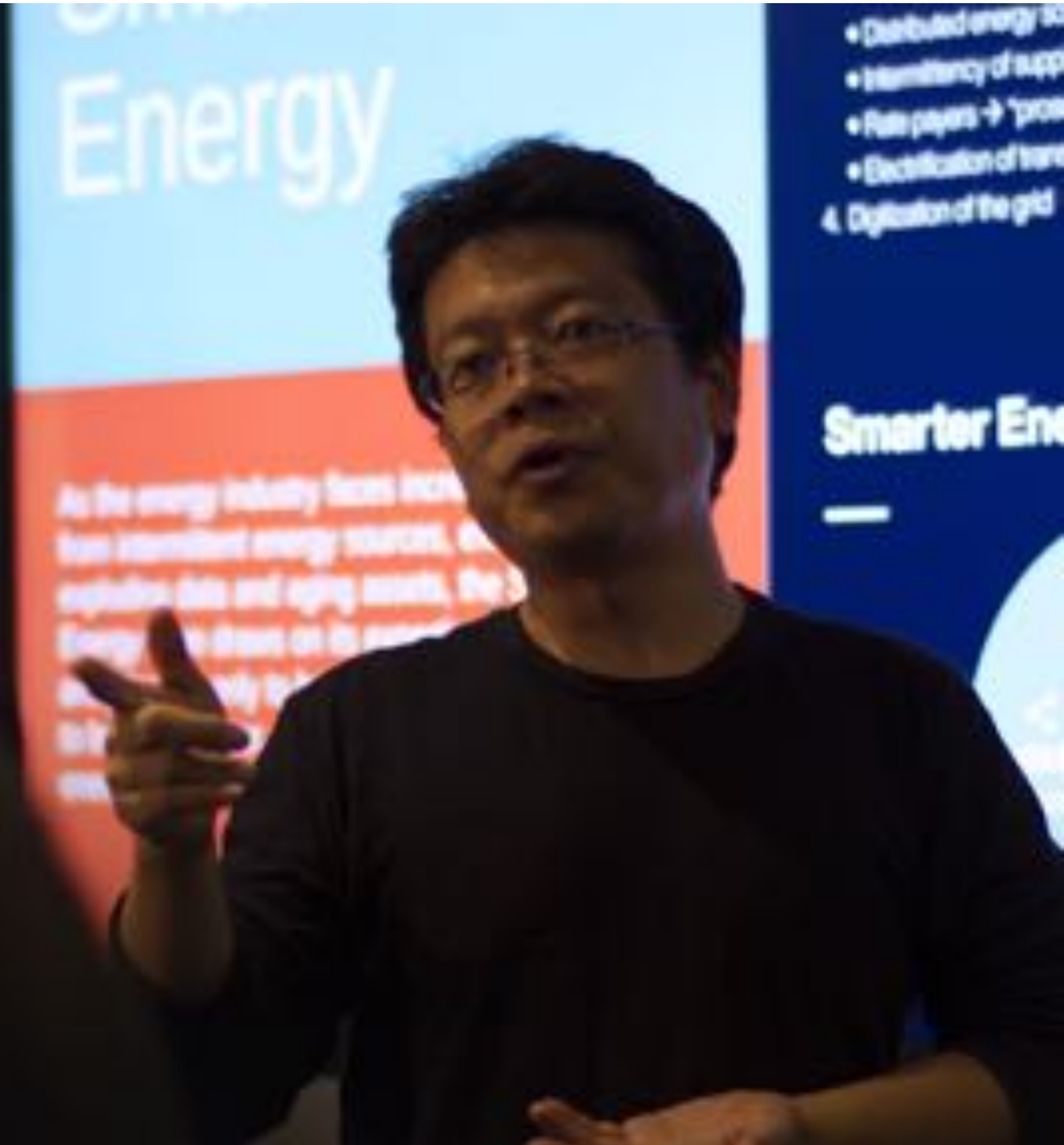
IBM Research expertise



**Deep problem
solving skills**



Innovation partnerships (RFI)



IBM Research THINK Lab – Zurich

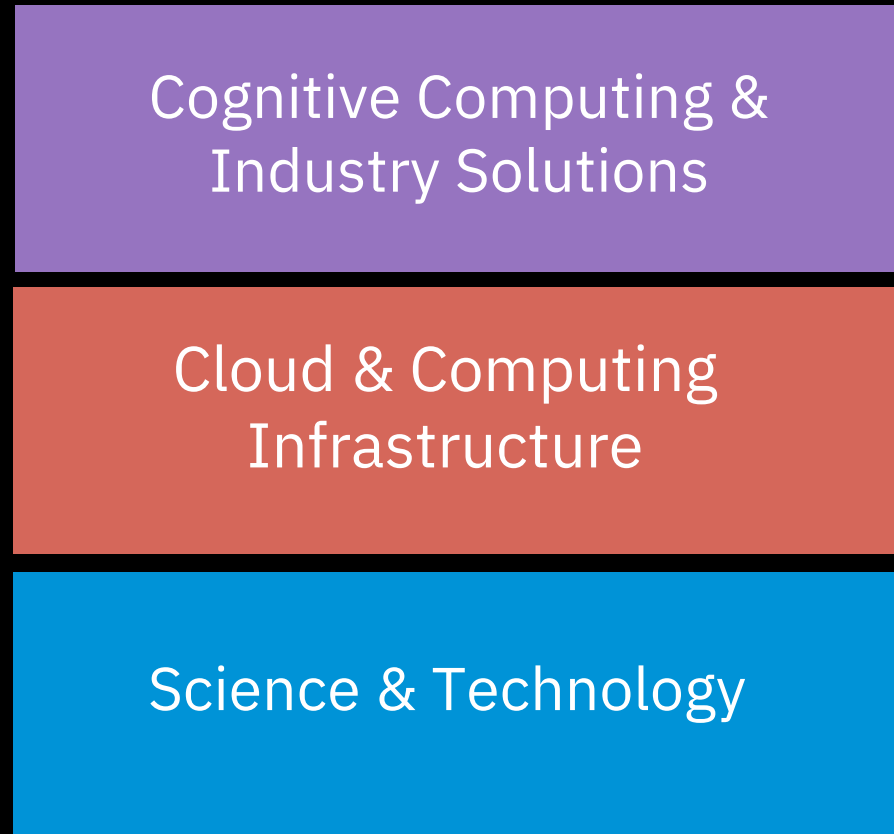
Your Door to IBM Research in Europe

The IBM Research THINK Lab is a place for leading companies to work with IBM researchers to solve their toughest problems. It is a space to **spark new ideas** and **drive innovation**.

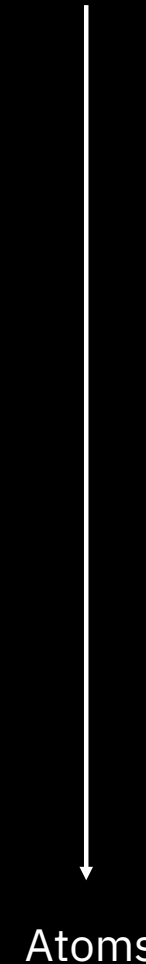


- Explore future technologies and their impact on businesses directly with IBM Researchers and trend experts
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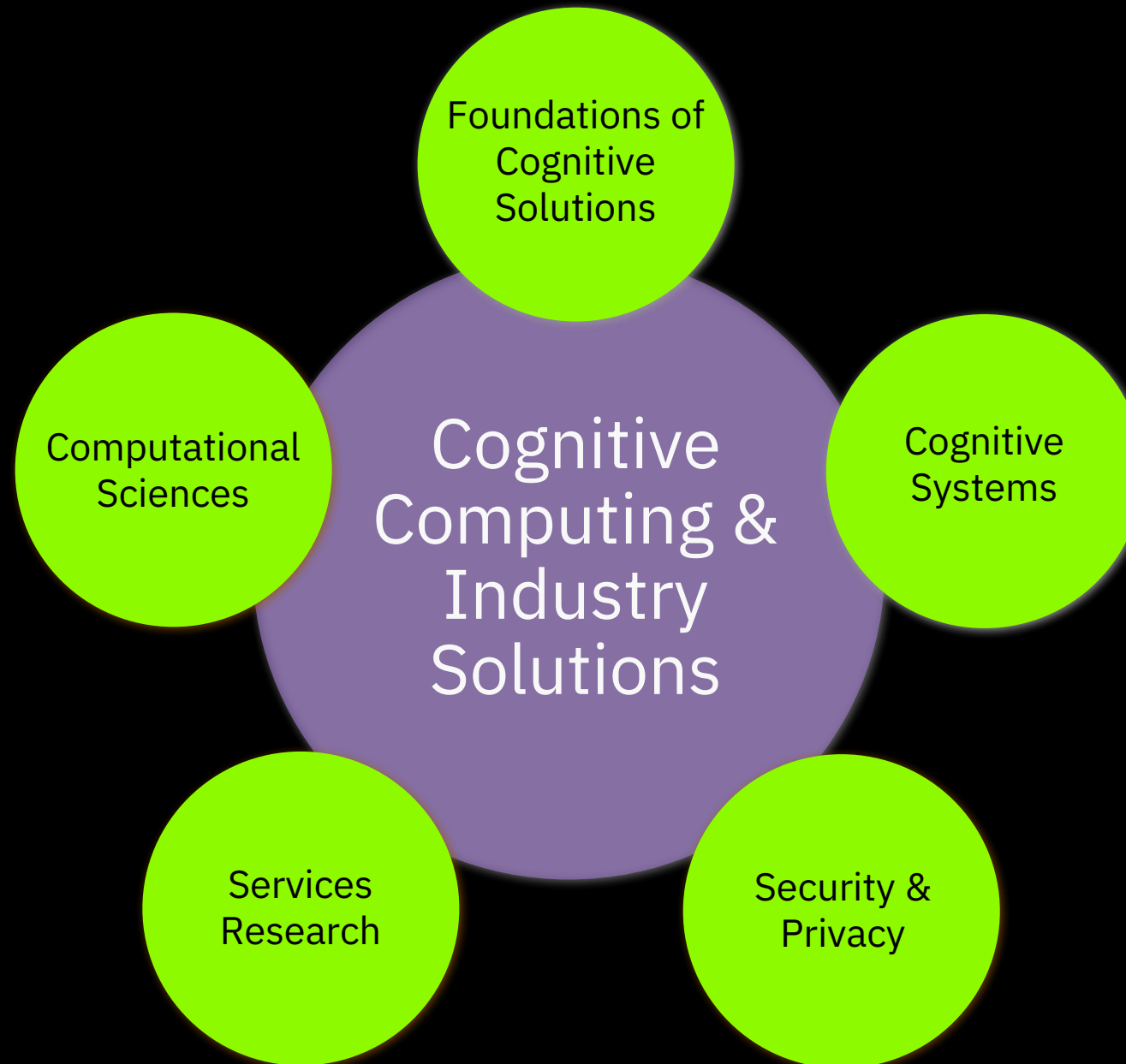
Scientific Departments



Big Data Analytics



Scientific Departments



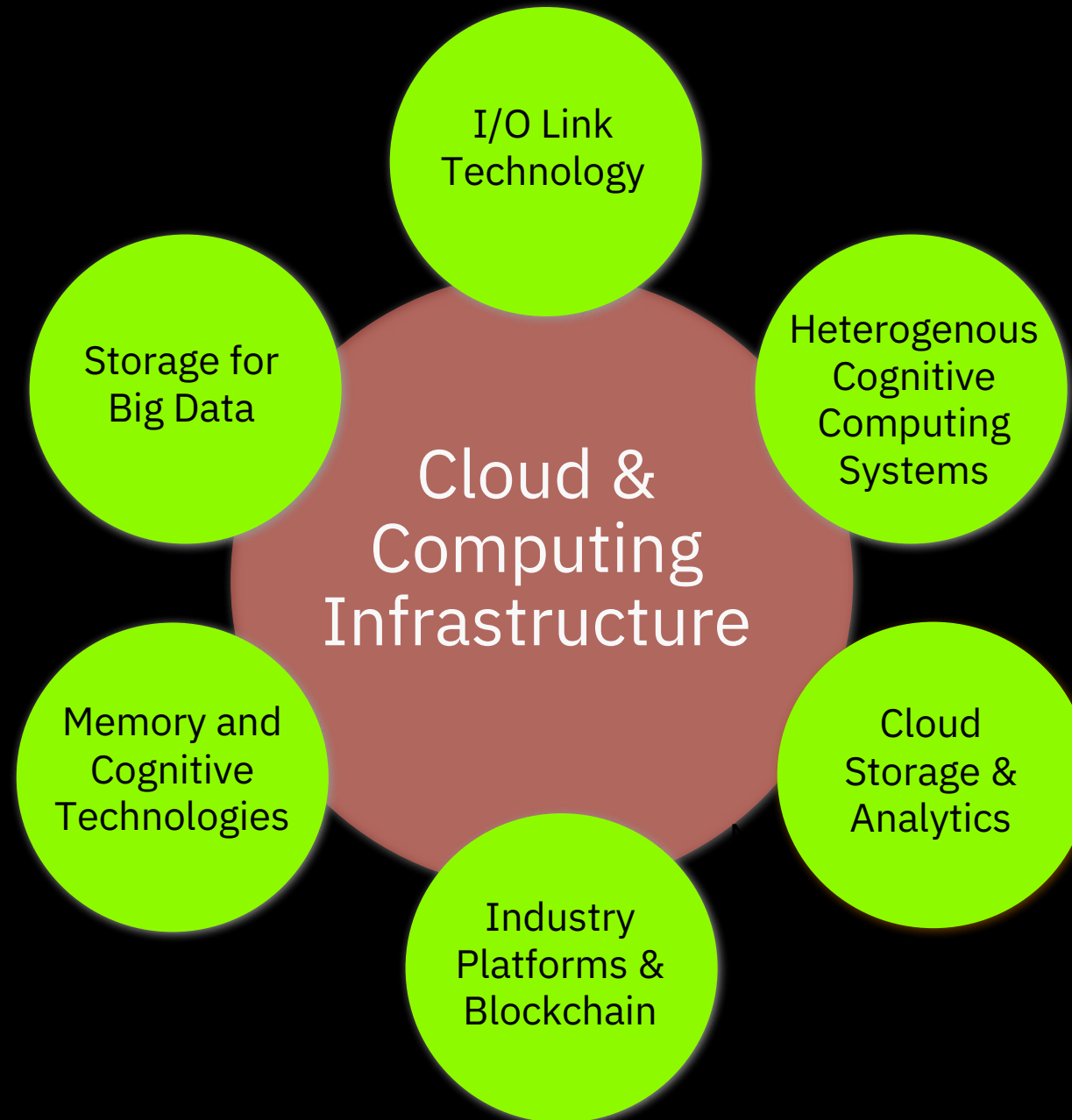
velocity

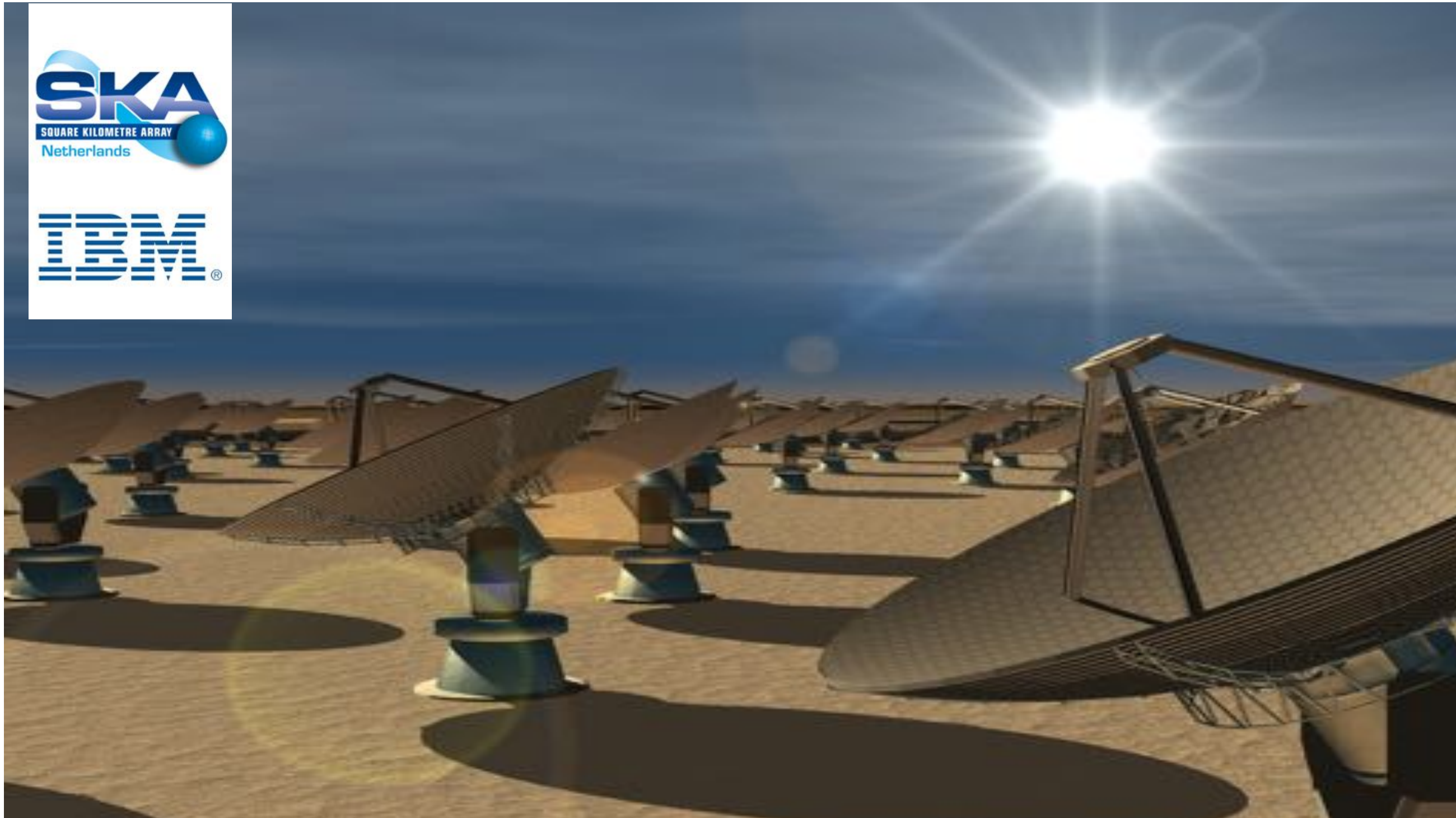


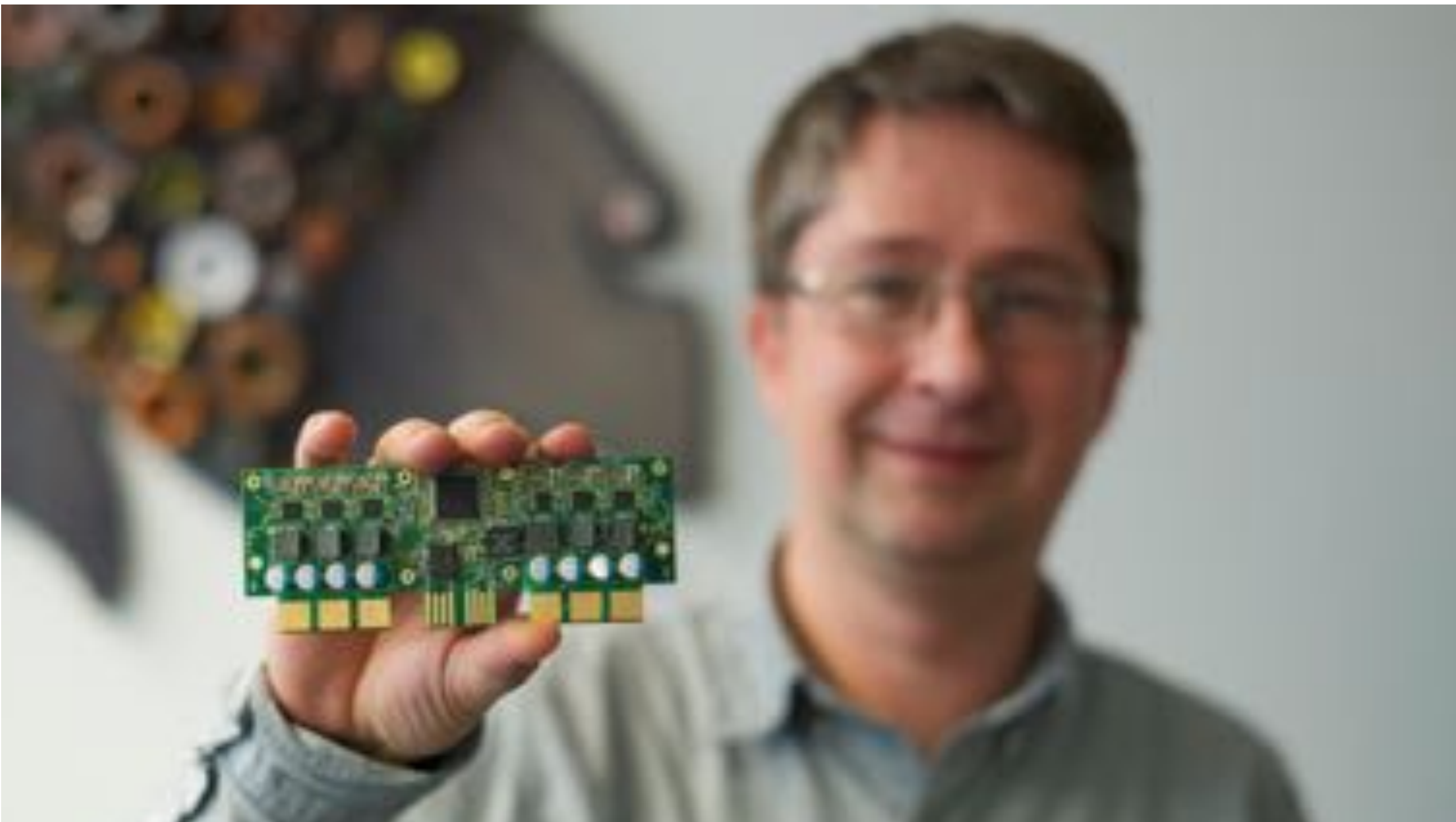
GORDON BELL 2015

Scientists at the University of Texas at Austin, IBM Research, New York University and the California Institute of Technology have been awarded the 2015 Gordon Bell Prize for realistically simulating the dynamics of Earth's interior. The team's work could herald a major step toward better understanding of earthquakes and volcanic activity.

Scientific Departments









IBM Research Achieves a Storage Record for Big Data

**IBM scientists have captured
330TB of uncompressed data
into a tiny cartridge**

TAPE STORAGE

In 2017 IBM Research scientists achieved a new world record in tape storage – their fifth since 2006. The new record of 201 Gb/in² in areal density was achieved on a prototype sputtered magnetic tape developed by Sony Storage Media Solutions enabling 330 TB in the palm of your hand.



Scientific Departments



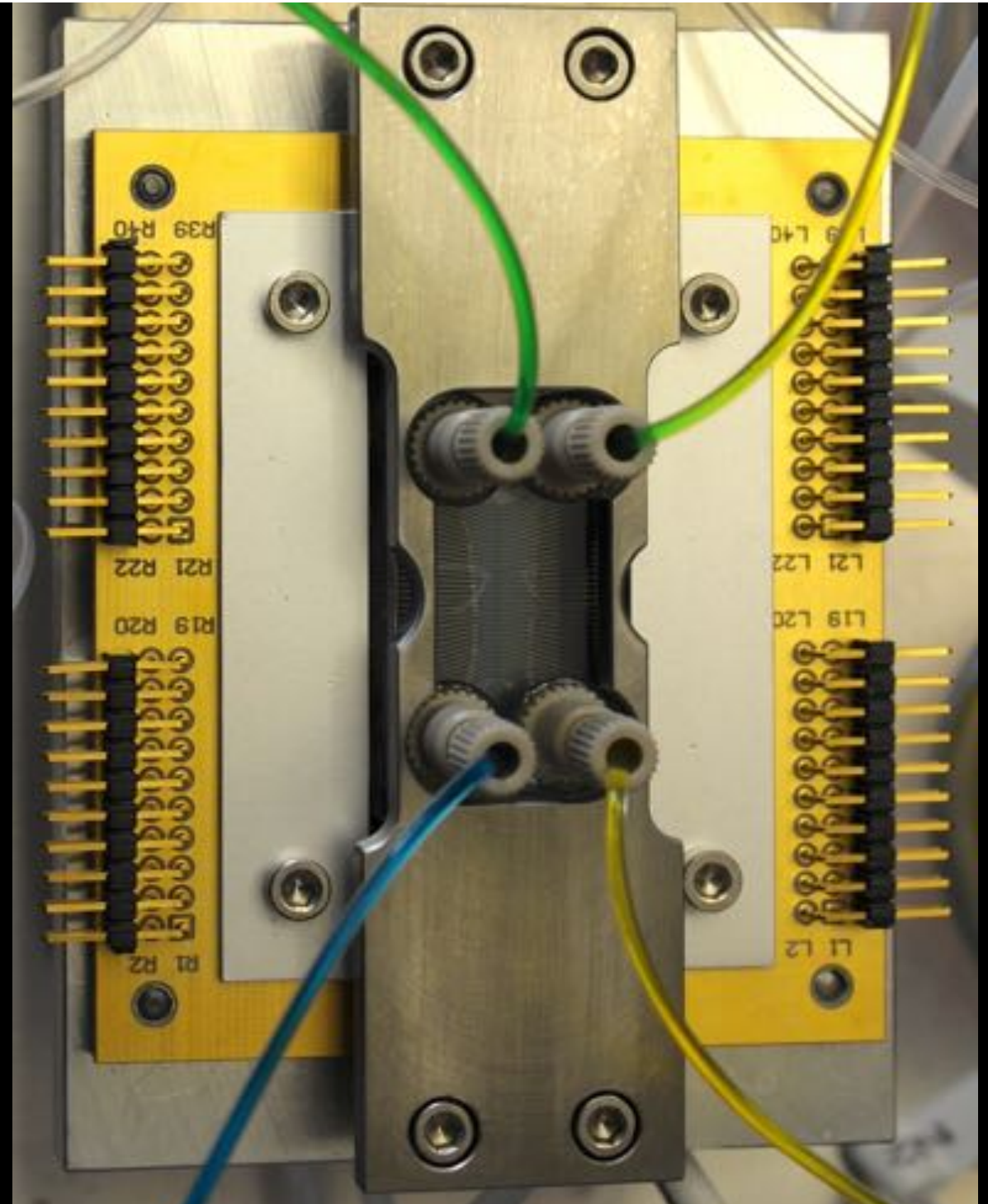


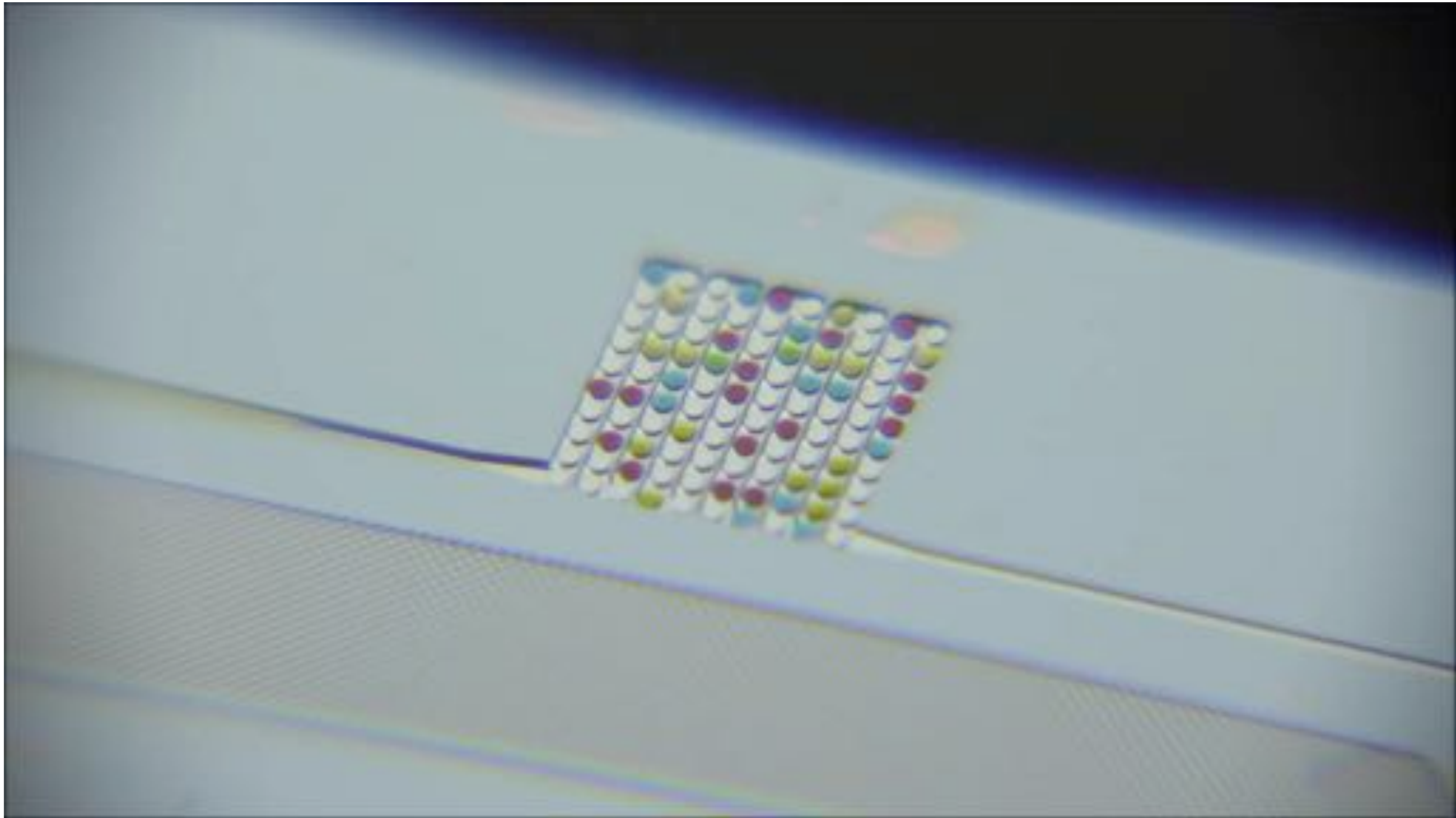
ATOMIC FORCE MICROSCOPY

We investigate the fundamental properties of individual atoms and molecules on solid surfaces. We are specifically interested in the manipulation and buildup of atomic-scale nanostructures, and the properties of individual molecules.

Brain Inspired Computing: Electronic Blood

8% of the energy of a computer is for cooling
liquid removes heat 4000x more efficiently than air
the brain is powered and cooled using liquid, can we
do the same for computers?
the result: a 1 PetaFlop supercomputer
in 1 liter





Questions?



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