https://news.harvard.edu/gazette/story/2021/04/harvard-launches-new-ph-d-program-in-quantum-science/

…SCIENCE & TECHNOLOGY

Launch of pioneering Ph.D. program bolsters Harvard's leadership in quantum science and engineering

Field expected to usher in era of super-fast computing and innovation across a range of fields

Harvard is once again taking a leading role in a scientific and technological revolution — this time in the field of quantum science and engineering. Today, the University launched one of the world's first Ph.D. programs in the subject, providing the foundational education for the next generation of innovators and leaders who will transform quantum science and engineering into next-level systems, devices, and applications.

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The University is building partnerships with government agencies and national laboratories to advance quantum technologies and educate the next generation of quantum scientists. Harvard researchers will play a major role in the Department of Energy's (DOE) Quantum Information Science (QIS) Research Centers, aimed at bolstering the nation's global competitiveness and security. As part of the centers, Harvard researchers will:

- develop and study the next generation of quantum materials that are resilient, controllable, and scalable;
- use quantum-sensing techniques to explore the exotic properties of quantum materials for applications in numerous quantum technologies;

- construct a quantum simulator out of ultra-cold molecules to attack important problems in materials development and test the performance of new types of quantum computation;
- develop topological quantum materials for manipulating, transferring, and storing information for quantum computers and sensors;
- investigate how quantum computers can meaningfully speed up answers to real-world scientific problems and create new tools to quantify this advantage and performance.

In partnership with the National Science Foundation (NSF) and the White House Office of Science and Technology Policy (OSTP), the Harvard University Center for Integrated Quantum Materials (CIQM) has helped develop curriculum and educator activities that will help K–12 students engage with quantum information science. CIQM is also collaborating with the Learning Center for the Deaf to create quantum science terms in American Sign Language.

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