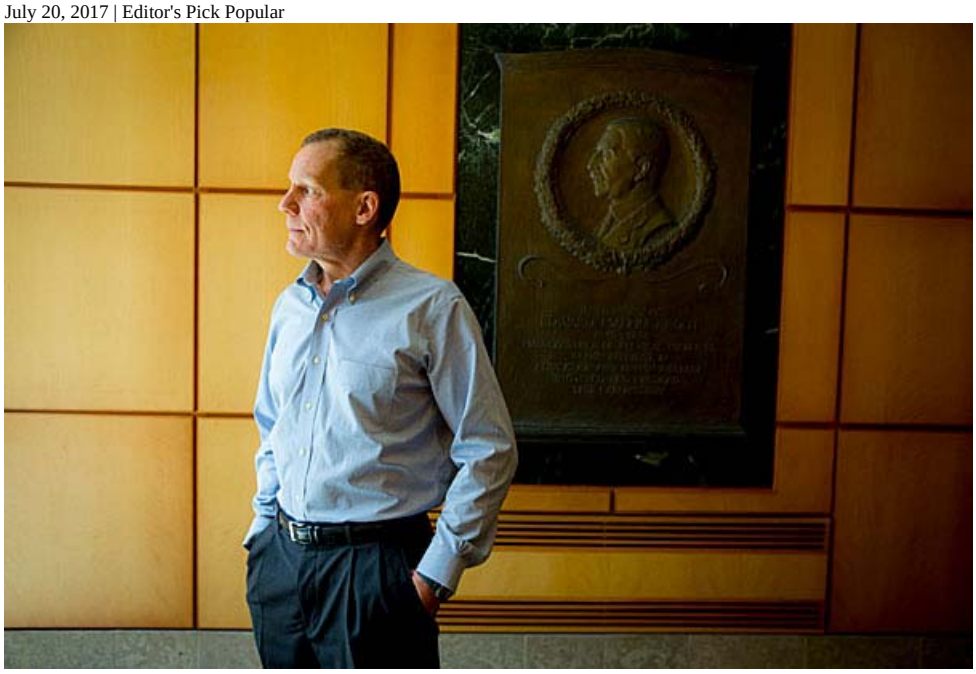
Harvard Gazette
Campus & Community > Faculty

Charles M. Lieber named University Professor

Scientist appointed to newly created Joshua and Beth Friedman University Professorship

July 20, 2017 | Editor's Pick Popular



Rose Lincoln/Harvard Staff Photographer

Professor Charles Lieber is the first to be awarded the Joshua and Beth Friedman University Professorship. The title University Professor is in itself Harvard's highest faculty honor.

Email Twitter Facebook

Acclaimed chemist Charles M. Lieber, a professor in the Faculty of Arts and Sciences (FAS) and the Harvard John A. Paulson School of Engineering and Applied Sciences, has been named a University Professor, Harvard's highest faculty honor.

Lieber will be the first to hold the University Professorship newly established by Joshua Friedman '76, M.B.A. '80, J.D. '82, and Beth Friedman. The chair supports a tenured faculty member who has shown both extraordinary academic accomplishment and leadership within the University community.

Lieber's appointment as the Friedman University Professor took effect on July 1.

At Harvard, Lieber has pioneered the rational synthesis of a broad range of nanoscale wire-like materials and characterization of their unique physical properties. He has also pioneered methods to assemble these "building blocks" into unique structures that have impacted and created new opportunities in areas ranging from electronics and computing to biology and medicine.

"Charlie Lieber is an extraordinary scientist whose work has transformed nanoscience and nanotechnology and has led to a remarkable range of valuable applications that improve the quality of people's lives," said Harvard President Drew Faust. "He's also a widely admired teacher, mentor, and colleague, and it's a pleasure to welcome him as the inaugural occupant of the Friedman University Professorship."

For more than a decade, Lieber pioneered the field of nano-bioelectronics, creating nanowire electronic devices with powerful new capabilities for ultra-sensitive, real-time detection of cancer markers and viruses, as well as the first nanoscale transistor tools capable of monitoring and modulating the behavior of individual living cardiac and neuron cells. He also was at the forefront of the creation of a new paradigm for electrical implants called syringe-injectable mesh nanoelectronics, whose ultra-flexible mesh enables the electronics to integrate seamlessly within the brain without causing damage. This new approach has allowed Lieber to record and stimulate the same neurons and neural circuits for time scales of at least a year, creating unprecedented opportunities for fundamental neuroscience research that could lead to powerful therapeutic tools capable of treating neurological and neurodegenerative diseases, as well as ameliorating declines in cognitive capabilities that come with natural aging.

"I sincerely appreciate the recognition for my work and, implicitly, the support of my student and postdoctoral co-workers, collaborators, and the Harvard community," said Lieber. "I am especially honored to be named the inaugural Friedman University Professor."

Lieber received his bachelor's degree in chemistry from Franklin and Marshall College in 1981 and went on to earn a Ph.D. in chemistry from Stanford University in 1985. After two years of postdoctoral work at the California Institute of Technology, he was appointed an assistant professor of chemistry at Columbia University in 1987 and promoted to associate professor of chemistry in 1990.

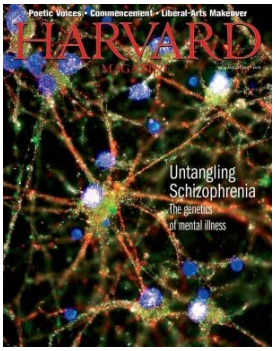
In 1991 he joined Harvard as a professor of chemistry, and since 1999 he has held a named chair as Mark Hyman Jr. Professor of Chemistry. Since 2015 he has also served as chair of the Department of Chemistry and Chemical Biology.

An author of nearly 400 articles in peer-reviewed journals, Lieber has been recognized with numerous awards, including the Von Hippel Award (2016), the highest honor of the Materials Research Society, as well as the IEEE Nanotechnology Pioneer Award (2013), the Wolf Prize in Chemistry (2012), the National Institutes of Health's Pioneer Award (2008), and multiple awards from the American Chemical Society. He is an elected member of the National Academy of Sciences, the American Academy of Arts and Sciences, the National

Academy of Inventors, the American Physical Society, the Chinese Academy of Sciences, the Chinese Chemical Society, and several other professional societies.

Lieber is co-editor of the journal Nano Letters, and serves on the editorial and advisory boards of several other science and technology journals. He is the principal inventor on more than 50 U.S. patents. Active in commercializing nanotechnology, he founded the nanotechnology company Nanosys, Inc., in 2001 and the nanosensor company Vista Therapeutics in 2007.

The first University Professorships were created in 1935, as a means to recognize "individuals of distinction … working on the frontiers of knowledge, and in such a way as to cross the conventional boundaries of the specialties." With the addition of Lieber, 26 Harvard faculty members across the University now hold this honor.



Your *independent* source for Harvard news

HARVARD MAGAZINE

NEWS

Charles Lieber Named University Professor

by JONATHAN SHAW

7.20.17

Professor Charles Lieber in his lab at 12 Oxford Street
Photograph by Rose Lincoln/Harvard Public Affairs and Communications

CHEMIST CHARLES M. LIEBER, a pioneer in the creation of bio-compatible electronics, has been named the inaugural Friedman University Professor, a

On **Readers'** Rad

1. Who Built the Pyramids?
2. The Rise of Vegan Culture
3. The Prankster's Secret
4. Harvard's Eugenics Era
5. Charles Lieber Named Uni Professor

You Might Also L

What Might Be Ne Café Algiers?

new position endowed by Joshua Friedman '76, M.B.A. '80, J.D. '82, and Beth Friedman. University Professors hold the highest faculty rank at Harvard, reflecting the eminence of their scholarshp. They are free to teach and conduct research in any University school.

Lieber has made stunning advances in electronics, devising—as long ago as 2001—nanoscale logic circuits just a few atoms wide that would self-assemble when poured as liquid onto a pre-engineered surface.

He has continued to lead the way in developing nanoscale biological interfaces, initially with nanowires so sensitive that they could function as sensors in the brain. In 2010, he developed a virus-sized transistor similar in size to intra-cellular organelles that can penetrate cell membranes and probe their interiors without disrupting function. And he has taken each of those discoveries a step closer to the reality of a biological computing interface—think man and machine—with the development of syringe-injectable mesh nanoelectronics that can integrate into neural networks.


S. Allen Counter H

Harvard to Ban Fir Outright?