

Report from the Killian Award Selection Committee

May 15, 2024

The James R. Killian Jr. Faculty Achievement Award was established in 1971 “to recognize extraordinary professional accomplishments by full-time members of the MIT faculty,” for outstanding contributions to their fields, to MIT, and to society. It is the highest award the faculty can bestow upon one of its members.

The Killian Award Selection Committee is pleased to recognize John D. Joannopoulos, Francis Wright David Professor of Physics, as the recipient of the 2024-25 James R. Killian Jr. Faculty Achievement Award.

Professor Joannopoulos received his PhD from the University of California, Berkeley in 1974, immediately after which he joined the faculty of the MIT Department of Physics. He has served as Director of the Institute for Soldier Nanotechnologies since 2006.

Professor Joannopoulos’s profound and lasting impact on the field of theoretical condensed matter physics finds its roots in his pioneering work in harnessing *ab initio* physics to elucidate the behavior of materials at the atomic level. In addition, his seminal research in the development of photonic crystals has revolutionized understanding of light-matter interactions, laying the groundwork for transformative advancements in diverse fields ranging from telecommunications to biomedical engineering. His remarkable achievements have earned him recognition both nationally and internationally, as evidenced by the many honors and awards he has received, including his election to both the National Academy of Sciences and the American Academy of Arts and Sciences. He is also a Fellow of both the American Physical Society and the American Association for the Advancement of Science.

Professor Joannopoulos has served as a legendary mentor to generations of students, inspiring them to achieve excellence in science while at the same time facilitating the practical benefit to society through entrepreneurship. His former graduate students have become academic leaders at top tier universities and research institutions worldwide. Notably, one of Professor Joannopoulos’s mentees achieved the pinnacle of scientific achievement by being awarded the Nobel Prize in Physics. Others among Professor Joannopoulos’s students went on to found companies, and still others led successful careers in other areas outside of academia. Moreover, Professor Joannopoulos has been a consistent role model not just in what he does, but in how he does it. In every collaboration, he casts a wide net so as to value multiple voices, to ensure that everyone feels included, and to encourage partnerships across groups, fields, and institutions. Through all of these individuals he has impacted – not to mention their academic descendants – Professor Joannopoulos has had a vast influence on the development of science in recent decades.

Professor Joannopoulos’s passion for impact has also facilitated the translation of basic science into real-world applications through numerous startups that range from the development of technology that has been used in medical procedures to save or improve the lives of hundreds of thousands of patients to technology with the potential to revolutionize the way devices are powered, from consumer electronics to electric vehicles. His ability to bridge the gap between academia and industry has not only advanced scientific knowledge but also led to the creation of dozens of new companies, thousands of jobs, and groundbreaking products that continue to benefit society to this day. Finally, the translation of basic research to benefit our men and women in uniform in service to this nation has been an area of utmost importance to Professor Joannopoulos throughout his career.

The Selection Committee is delighted to have this opportunity to honor Professor John Joannopoulos: a visionary scientist, a beloved mentor, a great believer in the goodness of people, and a leader whose contributions to MIT and the broader scientific community are immeasurable.

Professor Roger White (SHASS), Chair

On behalf of the 2023-2024 Killian Award Selection Committee:

Professor Eran Ben-Joseph (SA+P)
Professor Sangeeta N. Bhatia (Engineering)
Professor Robert C. Merton (Sloan)
Professor Marin Soljacic (Science)