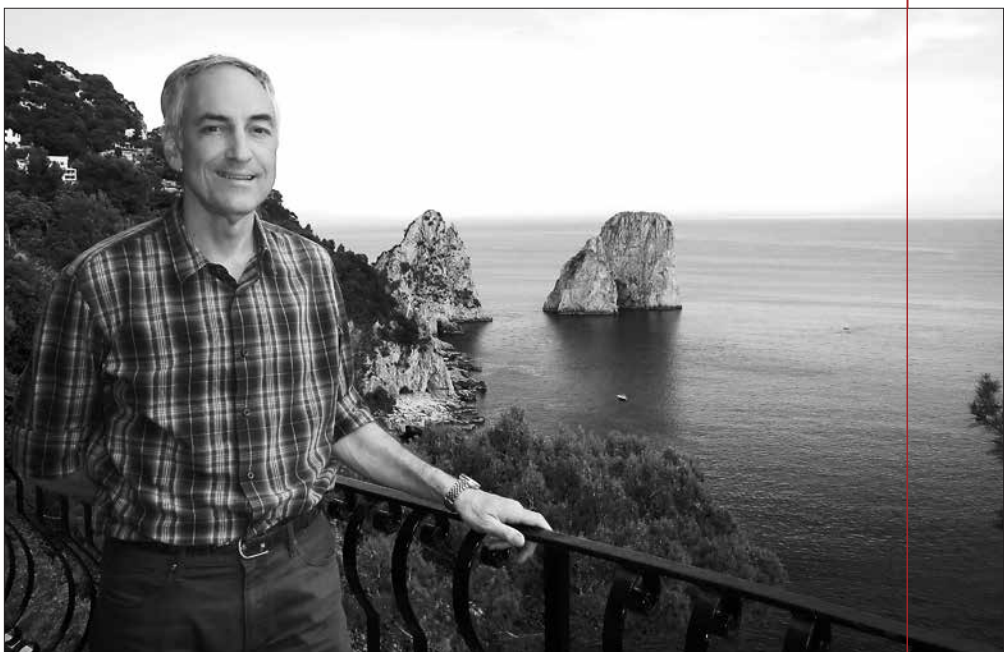


Giving to the Department of Physics

by Erin McGrath

(PAUL SWARTZ '73, PHD '79

Paul Swartz '73, PhD '79 understands the importance of supporting the Physics Department with Fellowship Support for attracting and supporting graduate students at MIT.



Paul Swartz

Paul was very interested in physics from an early age. His father was a physicist, first at Brookhaven National Laboratory and then at (what is now) Stony Brook University on Long Island. He has fond memories of both places of lots of high tech equipment and experiments going on. Many family friends were colleagues of his and also involved in science so it was a vibrant atmosphere in which to grow up.

Paul was an undergraduate and a graduate student in physics at MIT. When asked about his experience he replies, "I was pretty good at math and science, but at MIT I came to appreciate how much was, and could be, understood through a scientific approach. The challenge of coming to grips with the technical concepts and being able to forge solutions with them was very invigorating. It gives you confidence that you can make progress on very difficult problems even when a solution is not readily apparent."

For his first two years as a graduate student, Paul was part of a small team of high energy particle experimentalists lead by Prof. Wit Busza. He was conducting a "table top"

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size experiment out at Fermilab in Illinois and he spent a good part of the first year away from the Institute. After getting some preliminary results from the experiment, Paul began to get more interested in theoretical physics, so he switched to theory and completed a PhD under Prof. Francis Low.

Most of Paul’s career has been spent in the high tech electronics industry. After finishing at MIT, Paul worked at Bell Laboratories in a division that was developing computer-aided design (CAD) tools to help with integrated circuit (IC) designs. Although the circuits in those days were much smaller than what is possible now, there were still literally millions of details that had to be right before the circuit worked properly; it couldn’t be done without accurately modeling the circuits and automating the design process.

After a few years, Paul left Bell Laboratories and moved out to Silicon Valley in California to join a new company focused on building commercial tools for all aspects of CAD. The famous Moore’s law, which states that the number of transistors in the largest circuits doubles roughly every two years, meant that the computers and techniques to handle large amounts of design data could barely keep up with the size of the latest circuits.

From there, Paul moved to a company that built programmable chips called FPGAs (Field Programmable Gate Arrays). Soon after his arrival, he realized that they needed to better understand how large each of the signal delays inside the chips was, and how these delays differed from one chip to the next because of processing variations. Paul’s department developed automatic techniques to accurately measure and analyze these delays.

Paul has been a supporter of fellowships in the Physics Department. He first supported fellowships after speaking with Marc Kastner, then the Physics Department Head. Marc pointed out how hard it was to get funding for graduate students compared to other academic activities

and how important graduate fellowships were for attracting and supporting graduate students at MIT. Paul still gives to other areas at MIT, but has increased his support with a focus upon graduate fellowships. Paul is very happy to support the department and notes, “When you look at the breadth and depth of the work done by physicists who were trained or worked at MIT you can only be astonished by their accomplishments. This work deserves not only admiration but strong support so that it can continue.”

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A few years ago Paul became very interested in biotechnology. He thinks that “the field is advancing quickly and solving some very hard and important problems, but it’s not necessary to have a medical or biology background to make inroads in them. In fact, a background in physics provides a very useful set of skills for understanding many important issues in this field. I’m very glad to see that there is a lot of support at MIT for interdisciplinary research activities.”

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The MIT Department of Physics strives to be at the forefront in every field where new physics can be found. By constantly pushing the limits, we have a chance to observe new general principles and to test theories of the structure and behavior of matter and energy.

We invite you to join us on this journey with your financial support. Please consider a gift on behalf of the MIT Department of Physics. As important as outright gifts are to the Department, deferred gifts and other tax planning approaches can often make a more substantial gift possible. Gifts in any amount to the Physics Department unrestricted fund provide the discretionary funds necessary to start new experiments and new science.

Attracting the best graduate students to work with our faculty continues to be our highest priority. We have established the **Patrons of Physics Fellows Society** to recognize friends of the Department who have made it possible for us to recruit the very best graduate students. A commitment of \$70,000 or higher will make you a member of this society. You will receive updates from the named graduate student you are supporting and be invited to the annual Patrons of Physics Fellows Society dinner.

With your help, we will continue to understand the deepest aspects of nature, perhaps even the origins of space, time, and matter. To make a gift, or for more information on making a gift, please contact:

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