

Hidden physicists

Charles Day

Like me, my friend Vincent Kargatis earned a PhD in high-energy astrophysics and worked at NASA's Goddard Space Flight Center in Greenbelt, Maryland. Also like me, Kargatis left Goddard in the late 1990s to pursue a career outside of astronomy—in his case, computer programming. Now, 23 years later, he manages a team that ensures the quality of software produced by Oracle Utilities.

Since I joined PHYSICS TODAY in 1997, I've been obliged to keep up with developments in physics and to nurture contacts with physicists and their close professional relatives. Still, neither Kargatis nor I think of ourselves as physicists any longer.

Debbie Bard leads the data science engagement group at the National Energy Research Scientific Computing Center (NERSC) at Lawrence Berkeley National Laboratory. Before then, she worked at Imperial College London and SLAC. She earned a PhD in experimental particle physics at Edinburgh University in Scotland.

Bard's team helps researchers who need supercomputers for their data analysis and simulations. The job entails performing two translations: from what scientists need into what NERSC's systems engineers can provide and from what NERSC's hardware and software can do into what the scientists can implement.

"My work is very far from actual physics," Bard told me by email. "I'm mainly a manager of people and projects these days. But if someone asks me what I do, I still answer 'physicist.' It's pretty deeply ingrained in me."

I learned about Bard from Spotlight on Hidden Physicists, an ongoing series of articles in *Radiations*, the magazine of Sigma Pi Sigma, the physics honor society. Each article is about a person with a physics degree who, like Bard, Kargatis, and me, went on to do other things. The range of other things is wide. Among the 37 hidden physicists are a jazz singer, a Disney animator, a Wall Street analyst, and a theologian.

Kargatis qualifies as a hidden physicist. Indeed, people who work in computer software of one kind or another form the largest group in the *Radiations* series. Computer software is also the private-sector profession that employs the most PhD physicists, according to surveys conducted by the American Institute of Physics's Statistical Research Center. (AIP pub-

lishes PHYSICS TODAY and hosts Sigma Pi Sigma.)

Sigma Pi Sigma's Spotlight on Hidden Physicists succeeds in showing the variety of rewarding careers that people with a bachelor's, master's, or PhD in physics choose for themselves. High school seniors contemplating what subject to major in can be justifiably confident that a physics degree opens doors to careers beyond physics itself.

But when the professional physics community contemplates hidden physicists, it should be careful. Although Bard continues to think of herself as a physicist, Kargatis does not. When he and I get together, we talk mostly about music, food, and wine and occasionally about physics. He is not a prime candidate for becoming a PHYSICS TODAY subscriber or for rejoining the American Astronomical Society.

Of the physicists in the private sector, how many still consider themselves to be physicists? I don't know, but my hunch is

that the answer has to do with whether they continue to do physics. This past May Google announced its intention to spend billions of dollars to build a quantum computer that can perform large-scale, error-free calculations by 2029. Out of curiosity, I looked up Google's jobs site. To accomplish that ambitious goal, the company sought to recruit just six additional physicists.

Two other companies in physics-flavored industries, IBM and Tesla, had no postings for physicists. That's not to say either company had no jobs for which physicists were qualified. Tesla is currently looking for someone to do computer-aided engineering and computational fluid dynamics. Some physicists meet the position's requirements, but so, too, do engineers and applied mathematicians.

If "hidden physicist" is intended to mean someone outside academia who identifies as a physicist and who does physics, some adjustment might be needed. There could be fewer of them than expected.



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is the focus of this year's
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