

The Book That Opened a Door to Physics

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When I was a junior high school student, my home was always full of books. My mother and my older brother both loved reading, so books stood in rows on the shelves in our living room. I liked reading too. Sometimes I chose a book because the cover looked interesting. Sometimes I chose one simply because it was there.

One day, I found a book with a strange and funny title: *Surely You're Joking, Mr. Feynman!* At that time, I did not know who Richard Feynman was. Now I know that he was one of the greatest physicists of the twentieth century, but to my younger self he was just a mysterious person with a title that made me smile. I opened the book out of curiosity. Soon, I could not stop reading it.

The book is made up of many short stories from Feynman's life. To my surprise, many of them are not directly about physics. He writes about joking with friends, opening safes, playing the bongo drums, drawing pictures, and trying many things just because they seemed fun. The stories were lively and sometimes silly, and I enjoyed them first of all

as entertainment. Before reading the book, I had imagined scientists as serious people who spent all day in quiet rooms, surrounded by difficult equations. Feynman showed me a very different picture.

However, he was not only a funny person. Behind the jokes, I could feel his deep curiosity about the world. He seemed to look at ordinary things and ask, “Why does this happen?” or “Can I understand this more clearly?” Even when the stories were not about research, small glimpses of physics appeared here and there. Through them, I began to feel that physics was not just a school subject or a set of formulas to memorize. Physics was a way of enjoying the world by trying to understand its hidden rules.

That was the first experience that made me think seriously about becoming a physicist. I did not suddenly understand advanced science, and I did not know what kind of research I might do in the future. Still, the book gave me a longing for physics. It made me want to see the world with the same playful curiosity that Feynman had. From that time on, becoming a physicist was always my first choice. Now I am a graduate student in physics, standing one step away from the dream that began on the bookshelf at home.

When I entered university, I learned that longing alone is not enough to become a physicist. Physics requires patience. It requires learning many concepts, solving problems, making mistakes, and trying again. Sometimes I could not understand a lecture the first time. Sometimes a problem that looked simple took many hours. However, longing is still important. It is like the first push that starts a bicycle moving. Without that push, the bicycle does not go anywhere. My encounter with Feynman’s book gave me that first push, and it still helps me when studying becomes difficult. Today, I specialize in condensed matter physics. The name may sound difficult, but the basic idea is simple. Everything around us—desks, water, air, phones, and even our bodies—is made of tiny pieces called atoms. Atoms contain even smaller particles, such as electrons. Some physicists ask, “What are the smallest pieces of the universe?” and “What are the most basic rules they obey?” These are questions in particle physics. Condensed matter physics asks a different question: “What happens when huge numbers of particles gather together?” This is important because the things around us are not made from just one or two particles. They are made from enormous numbers of them. Even a tiny piece of material contains far more particles than we can count one by one. Because of this, a group of particles can behave in surprising ways that we cannot easily guess from a single particle.

A good example is superconductivity. In ordinary metal wires, electricity loses some

energy as heat when it flows. That is why electronic devices can become warm. In a superconductor, however, electricity can flow with no electrical resistance. In simple words, the electricity can move without wasting energy in that way. This does not happen in an ordinary piece of metal, and it cannot be understood just by looking at one electron alone. It appears when many particles act together in a special state. To me, this is one of the most exciting parts of condensed matter physics: many small things can create one big new behavior.

My current research is related to superconductivity and magnetism. Magnetism is the reason magnets stick to a refrigerator, but in physics it also means many deeper questions about how tiny particles arrange themselves. By studying these phenomena, we hope to understand materials better and perhaps help create useful technologies in the future. For example, superconductors may lead to devices that use less electricity, methods for transporting energy with little loss, and quantum computers, which may solve certain problems much faster than today's computers.

Although these useful applications are important, the feeling that first brought me to physics was even simpler: I wanted to enjoy understanding the world. That feeling came from a book I found by chance and from Feynman's joyful way of looking at nature. In superconductivity and magnetism, many fascinating phenomena are still waiting to be understood. I am especially interested in what happens when we shine light on superconducting or magnetic materials. Through my research, I would like to discover new ways in which these materials respond to light and understand why they happen. For me, this would be another way to feel the joy of understanding the world.

If you are a junior high school student, you do not need to know your future research topic yet. You only need to keep asking questions. A book, a teacher, a family member, a friend, or a small experience may open a door for you. If something makes you wonder "why?", please follow that feeling. It may become your own helping hand toward science.

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Statement about the use of AI

The author used ChatGPT to improve the English and clarity of this essay. The first draft was written by the author before asking AI for suggestions for improvement. The image was created by ChatGPT.