

1997

Judith Sharn Young

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JUDITH SHARN YOUNG

(1952–)

Astronomer

Birth	September 15, 1952
1974	B.A. (with honors), astronomy, Harvard University
1975–90	Married Michael Young
1977	M.S., physics, University of Minnesota
1979	Ph.D., physics, University of Minnesota
1979–82	Postdoctoral Research Associate, University of Massachusetts, Amherst
1982–83	Annie J. Cannon Prize, American Astronomical Society



Judith Sharn Young. Photo courtesy of Judith S. Young.

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| 1982–84 | Visiting Assistant Professor, University of Massachusetts, Amherst |
| 1984–87 | Assistant Professor, University of Massachusetts, Amherst |
| 1986–88 | Maria Goeppert-Mayer Award, American Physical Society |
| 1986–89 | Sloan Research Fellowship |
| 1987–93 | Associate Professor, University of Massachusetts, Amherst |
| 1991 | Visiting JCMT Fellow, University of Hawaii |
| 1993– | Professor, University of Massachusetts, Amherst |

“I did not grow up thinking that I wanted to be an astronomer,” Judith Young admits, “although I loved the sky and I remember even at age 11 just sitting outside and looking at the sky and being awed by the beauty of the stars.”¹ Some might think that fate was sealed for Judith Sharn Rubin when she was born on September 15, 1952, in Washington, D.C.—that she was destined to pursue science. Young’s parents are Rob-

ert J. Rubin, a physical chemist, and Vera Cooper Rubin, an astronomer. **Vera Cooper Rubin** is known for proving the existence of dark matter, a ground-breaking contribution that led to many other equally important discoveries in astronomy.

It just so happens that Young and each of her three brothers have chosen careers in the sciences, but Young did not feel compelled to develop her nascent interest in astronomy until her senior year in high school. Until then, she preferred chemistry and biochemistry. But she experienced a defining moment during an astronomy class: "the moment that I decided I wanted to be an astronomer was when I learned about black holes. They were so neat to me that I needed to be an astronomer. I was lucky to be taught the course by really an outstanding teacher and role model, and she is also my mother."

Young did not set out to emulate her mother, however. She was determined to contribute in her own way and without the potential benefit of the Rubin name. So, when she married in 1975, she took her husband's name to prevent instant recognition as Vera Rubin's daughter. She chose to keep the name "Young" even when she divorced after nearly 14 years of marriage.

Young's path to her current position at the University of Massachusetts at Amherst was a trying one, but she persevered. She chose to study astronomy as an undergraduate and was accepted at Harvard. She received her B.A. there with honors in 1974 but was advised by one of her professors in her junior year to drop out and get married. At best, Young was told, she would get a job in a junior college—and even those jobs were difficult to get. She was disappointed but not swayed by the advice.

Young was not readily admitted into graduate school because her physics background was considered to be weak. With encouragement from her parents, she persisted and was admitted to the University of Minnesota graduate program in astronomy in 1974.

In her second year there, even after she had completed the Ph.D. qualifying exam, she was told by the faculty in the department that she should stop with the master's degree. The sole impetus for their decision was that she was to be married to Michael Young, a graduate geology student also at the University of Minnesota. Young was told that she should follow her husband in his career and not pursue a career of her own. She felt compelled not only to ignore that advice but to switch from the astronomy program to the physics program. "There was one faculty member there who bridged the gap between physics and astronomy," Young recalls, "and she happened to be the only woman in the [physics] department at the time, Phyllis Freier. . . . I ended up pursuing for my Ph.D. cosmic ray physics, the study of the different isotopes in the cosmic rays that are showering our solar system, planet, and galaxy."

Young completed her dissertation, "The Isotopic Composition of Cos-

mic Rays," in 1979. That same year, she applied for and got a postdoctoral position at the Five College Radio Astronomy Observatory (FCRAO) of the University of Massachusetts at Amherst. The postdoctoral position led shortly thereafter to her appointment as the first woman astronomy faculty member at the university.

Studying galaxies was Young's goal. She explains that "in 1980 here at UMass, the receivers improved significantly and it was because of that that I was able to begin the galaxy work. . . . I think that if that hadn't happened, I might not have even stayed in astronomy because I remember thinking that maybe I would switch to another science like geology if the galaxy work did not become possible."

Early on at the FCRAO, Young was mentored by Nick Z. Scoville, a visiting radio astronomer with whom Young collaborated often. Much of their work involved studying the carbon monoxide and cold gas content of galaxies, because this is the material from which stars form. Among several other discoveries, they determined that the distribution of gas is proportional to the distribution of light in the galaxies. That is, as the amount of gas that is present in the galaxies increases, the more stars are formed. This work led to Young's receipt of the Annie J. Cannon prize, an award given in recognition of a young woman astronomer for her achievement and potential for research.

Young has been prolific throughout her 15-year professional career, publishing over 100 papers and giving nearly as many talks and seminars. In addition to the aforementioned galaxy studies, her interests lie in galaxy formation and evolution, star formation, and interstellar matter (the matter that lies between the stars in galaxies). She has received several professional awards and honors, including, in 1986, the Maria Goeppert-Mayer Award of the American Physical Society. Young was the first recipient of this award, which is given to a woman in the early stages of her career who has made a significant contribution to physics.

The Goeppert-Mayer Award carried with it the stipulation that she give a number of talks to encourage women in science. When she arrived to give the talks, she invariably encountered audiences of virtually all men. Young took the opportunity, therefore, to remind the men in the audiences that "encouraging women in science has at least as much to do with getting encouragement from the men in our lives as the women."

Although Young very much enjoys conducting research, teaching is just as important and rewarding to her. "I enjoy teaching the undergraduate courses a lot. I teach the graduate courses, and the students there are more interested; but there is a part of me that really likes bringing . . . just a very basic understanding of astronomy and the universe to people who are not used to thinking about science."

To bring the world of science to a new generation, in addition to her

postsecondary-level teaching, Young has begun to write a children's book on the phases of the moon. Also, for the past six years she has been teaching astronomy at the elementary school that her daughter, Laura Rose Young (who is now 11 years old), attends.

From the time she was a girl, Young has been intrigued by and had an aptitude for not only astronomy and physics but chemistry and biochemistry as well. Since she attained full professor status in 1993, she has had the freedom to pursue more than astronomy. Recently she has forayed into biomedical research, with her sights set on a gentle cure for cancer or research that helps other investigators to that end.

Like George Gamov, for instance, who was a twentieth-century scientific polymath in astronomy, physics, and biochemistry, Young will contribute whatever she can, using all her talents to better the world. Young sees the parallels between research in astronomy and biomolecular research in that, she says, "galaxies are the cells of [a] large-scale structure, and the cells that I'm looking at that are cancers are [of a] small-scale structure. . . . It's very inspiring to me to be able to do both at the same time—and rewarding."

As for the future, Young plans to continue her astronomy research and teaching along with her biomedical research. She is a member of the American Astronomical Society and its Committee for the Status of Women, the International Astronomical Union, the American Physical Society, and the Association for Women in Science. She will also continue to teach in her daughter's school every year and to encourage Laura to pursue as a career whatever she most enjoys. This is something that Vera Rubin impressed on her when Judith was a child. "I remember my mother telling me when I was young that I could do anything I wanted to in my life," Young remarks, "if I kept my mind to it."

Note

1. All quotes are taken from audiotape answers by Judith S. Young to a questionnaire prepared by Sue Ann Lewandowski, Amherst, Massachusetts, June 1995.

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Published in *Notable Women in the Physical Sciences: A Biographical Dictionary*, edited by Benjamin F. Shearer and Barbara S. Shearer (Westport, Connecticut: Greenwood Press, 1997), pp. 438–443.

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