

# Some Outstanding Women of Nuclear Physics

## Lise Meitner (1878–1968)



An Austrian Jew and a woman, Meitner was constrained early in her career to working without pay in a basement room in Berlin. For many years, she collaborated closely with the chemist Otto Hahn; they even discovered a new chemical element together. But Hahn later betrayed her friendship, failing to keep her from being expelled from their institute after the Nazis had gained power. Isolated in Sweden, she nevertheless continued to guide and interpret Hahn's work, ultimately realizing that his results represented the splitting of the atom—nuclear fission—in accordance with Einstein's equation  $E=mc^2$ . Hahn claimed the discovery for himself and accepted a Nobel Prize for it without crediting Meitner. She later received informal recognition for her role.

## Maria Goeppert Mayer (1906–1972)



The young Goeppert thrived in the stimulating environment of the university town of Göttingen, Germany, where many world-famous physicists worked and studied. Her intellect and abilities were encouraged by her supportive father and many available mentors. She married a physical chemist, Joseph Mayer, but due to rules against nepotism, she had trouble finding jobs at the universities where he worked. During World War II, she was part of the Columbia University team of the U.S. government's secret Manhattan Project to build an atomic bomb. In 1963 Mayer won a Nobel Prize for her work on the shell model of nuclear structure.

## Chien-Shiung Wu (1912–1997)



Wu was born in China, where her father opened the first girls' school. He advised her to always "Ignore the obstacles . . . just put your head down and keep walking forward." In 1936 she came to the University of California at Berkeley. She received her doctorate there and began working on the Manhattan Project. She developed a process to separate fissionable uranium-235 from uranium-238, a key step in accumulating uranium fuel for the bomb. Later, as a professor at Columbia University, she conducted experiments that led to a Nobel Prize—awarded to two male scientists who had requested her help. However, Wu did receive other prizes and recognition for her important work.

### What Does It Mean to You?

Each of these physicists had to overcome challenges to be recognized and respected in her society. Do you notice some similarities in their stories? What kinds of challenges face people today who wish to become scientists?

### Now Check This Out!

#### Lise Meitner: A Life in Physics

by Ruth Lewin Sime.  
University of California Press, 1996.  
*Find out about Meitner's life and work, including her discovery of nuclear fission.*

#### Nobel Prize Women in Science: Their Lives, Struggles, and Momentous Discoveries, 2nd ed.

by Sharon Bertsch McGrayne.  
Birch Lane Press, 1998.  
*Learn about 15 women who have won or contributed significantly to a Nobel Prize in science.*

#### Contributions of Twentieth-Century Women to Physics

[cwp.library.ucla.edu](http://cwp.library.ucla.edu)  
*Explore biographies, photographs, quotations, and documents of 86 pioneering women in diverse areas of physics, including those related to  $E=mc^2$ .*