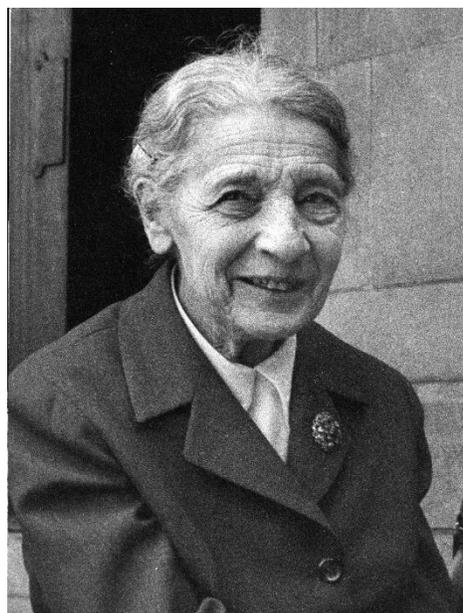


Nobel Prize Case Study: Lise Meitner

Lise Meitner was a 20th century Austrian physicist who was critical to the discovery of *nuclear fission*. In 1905, she earned her PhD in Physics from the University of Vienna—becoming the second woman in the institution’s history to do so. Following her graduation, she pursued post-doctoral work under Max Planck at the Chemical Institute in Berlin, Germany, where she remained for 31 years. She eventually met Otto Hahn, a German chemist who was looking for a physicist to collaborate with to study the emerging science of *radioactive decay*. Together, they laid the groundwork for the discovery of nuclear fission, for which Otto Hahn was solely awarded the Nobel Prize in Chemistry in 1944.



Lise Meitner

Read the following excerpt
and answer the Discussion Questions below:

“The question of who deserved credit for the breakthrough, however, has long been debated. Physicist Lise Meitner and two chemists, Otto Hahn and Fritz Strassmann, conducted a four-year-long investigation that resulted in the discovery of fission in their laboratory in Berlin. Meitner fled Nazi Germany in 1938 to escape the persecution of Jews, and soon after, Hahn and Strassmann reported the discovery. Meitner and her nephew, Otto R. Frisch, published the correct theoretical interpretation of fission a few weeks later. But the 1944 Nobel Prize in Chemistry was awarded to Hahn alone. That Strassmann did not get the Nobel with Hahn is probably because he was the junior investigator on the team, and Nobel committees tend to favor senior scientists. But Meitner and Hahn held equal professional standing.

Why was she excluded? Hahn offered what became the standard account, which was uncritically accepted for many years. According to him, the discovery had relied solely on chemical experiments that were done after Meitner left Berlin. She and physics, he maintained, had nothing to do with his success, except perhaps to delay it. Strassmann, who was very much in Hahn’s shadow, disagreed. He insisted that Meitner had been their intellectual leader and that she remained one of them through her correspondence with Hahn, even after she left Berlin. The available documents support Strassmann’s view. Scientific publications show that the investigation that led to the discovery of fission was intensely interdisciplinary.” – Ruth Lewin Sime, “Lise Meitner and the Discovery of Nuclear Fission,” 81.

Discussion Questions

- (1) How many times was Lise Meitner nominated for the Nobel Prize in physics? _____
- (2) Summarize two arguments for why Lise Meitner should have been awarded the Nobel Prize.
- (3) Summarize one argument that could explain why Lise Meitner was not included in the Nobel Prize.
- (4) Meitner received many prestigious awards and honorary degrees later in her career. Despite her exclusion from the Nobel Prize, do you think these recognitions sufficiently acknowledge her contributions to physics? Why or why not?