LISE MEITNER

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In 1939, Meitner proposed that barium nuclei were generated when uranium was bombarded with neutrons because the uranium nucleus split in half. The energy released during uranium fission was found to be about ~200 MeV, which Meitner determined was exactly what would be predicted by the splitting of a nucleus.[1] She was the first to explain the mechanism behind nuclear fission.

Born in Vienna, Austria; received doctorate at the University of Vienna; worked with Max Planck and Otto Hahn at Friedrich Wilhelm University in Berlin; fled to Sweden in 1938. Meitner declined offers to work on the Manhattan project and spoke out against the creation of nuclear bombs. She was denied the Nobel Prize for her efforts, with all the credit instead being given to her associate Otto Hahn.[2] Meitnerium is named after her.

1.) Frisch, O. R. "Physical Evidence for the Division of Heavy Nuclei under Neutron Bombardment". *Nature*. 143 (3616): 276. 10.1038/143276a0 (1939)
2.) https://ahf.nuclearmuseum.org/ahf/profile/lise-meitner/

DR. MEITNER INTERVIEW

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INTERVIEWER: Today I'm sitting with Dr. Lise Meitner, one of the brilliant scientists who discovered nuclear fission. How are you doing today, Meitner? How has your visit to the U.S. been so far?

MEITNER: I'm meeting a lot of new people here. It's a bit much, actually. I'm doing fine, though.

INTERVIEWER: That's great. So, people say that you were the first person to actually figure out and model the splitting of an atom. What was that discovery like? How did it come to you?

MEITNER: Oh, that feels like so long ago. It was around Christmas and Frisch and I were staying at a friend's house in Sweden. Hahn sent me a letter saying that he had detected the presence of barium after exposing one of the uranium samples. At that time, we had no idea that nuclei could split like that. The biggest thing to come from a nucleus was an alpha particle, and of course, that doesn't weigh nearly as much as a barium nucleus.

INTERVIEWER: Yes.

MEITNER: We were walking through the woods and I was thinking about how it didn't make sense. I didn't doubt Hahn's results though, so I did some rough calculations on paper right there and then.

INTERVIEWER: And it made sense?

MEITNER: It worked out perfectly. The energy released by the fission process correlated exactly with what would be predicted by the net mass loss. You know, with Einstein's formula.

INTERVIEWER: Just like that? That must have been exciting. Did you write back to Hahn?

MEITNER: Oh, we told him about it when we got back. He immediately started writing.

INTERVIEWER: I would have too! Anyways, I believe that's all you have time for. Have fun with the rest of your visit!

MEITNER: I will, thank you!