

## Being a physicist, 17 July 2018

### Women in Physics Canada 2018

Merci de l'invitation à vous adresser la parole. On m'a suggéré de parler en anglais pour être compris par la majorité, mais je ne suis pas certain qu'avec mon accent ce sera nécessairement ce qui se produira.

I have three short stories to tell,

Born in 1882, she has revolutionized abstract algebra. In physics, we know her for the theorem that demonstrates that conservation laws are consequences of the existence of continuous symmetries. This result is important in basic physics, this result is important in quantum field theory, this result is important for our understanding of nature. Yet, Emmy Noether had to teach without salary from 1907 to 1923. Because she was a women.

Invited by Hilbert to Göttingen in 1915, philosophers and historians opposed her nomination. A member of the Faculty protested: "What will our soldiers think when they return from war and find out that they have to study at the feet of a women" Hilbert responded with indignation: "I do not see why the gender of the candidate can be an argument against her nomination... After all, we are a University, not a bathhouse".

The list of major physics discoveries made by women is long : the shell model of the nucleus, nuclear fission, radioactivity, parity violation, pulsars, the first experimental evidence of dark matter, the first X rays of DNA and many others. All of this without much recognition.

During my first trip in China in 1991, everything seemed strange. I did not understand the characters, I did not understand the language, I did not understand the way of life. Nevertheless, as soon as I came to the Institute of physics, it was as if we had always known each other, it was as if we spoke the same language, it was as if we had the same way of life. That is what Hilbert had understood. We all have, in the same person, many identities. We are members of a family, we are citizens, we are physicists. To be a physicist is an identity, it is a way to think, it is a way to see the world. That identity does not have color, that identity it does not have nationality, that identity does not have gender.

Finally, there is the story of an adolescent girl, member of the North West Territory First Nations. She was participating in a program for high school students at the Canadian light source. She had to present her experimental results to the scientists of the research Center. She vomited before being able to deliver, laboriously, like me, her presentation. During the following year, she was invited in her village, in schools, in different communities to talk about her experience. I would have liked to be able to show you the picture of her, confidently fielding questions from those same scientists the following year. Confidence is not generally innate. It can be built.

Your presence here today, the impressive list of speakers, the commitment of Sophie, Maude and Marie-Ève, who organized this Conference, are a testimony to the profound social changes within the profession. To be a physicist is an identity, it is a way to think, it is a way to see the world, it is an identity that belongs to all those who choose to embrace it. Your future is promising. It is your turn to speak.

