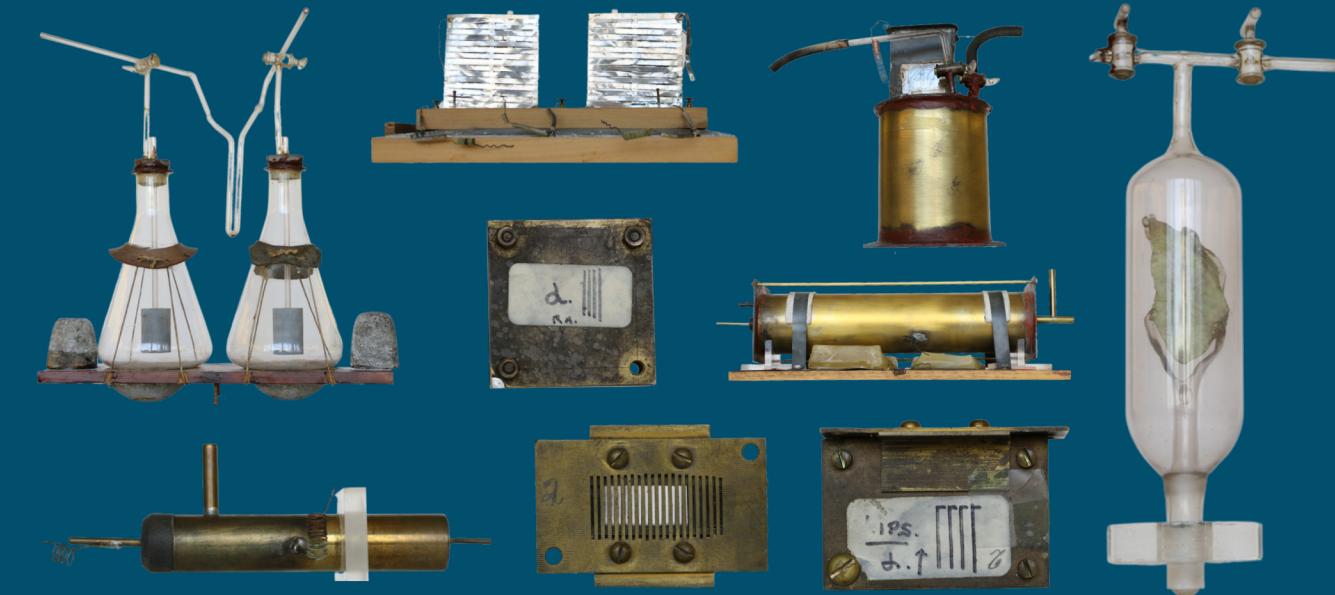


RUTHERFORD COLLECTION

Research on Radioactivity at McGill University

Radioactivity, the process by which an unstable atom loses energy through radiation, was discovered in 1896 by Henri Becquerel. Ernest Rutherford and his colleagues at McGill University were among the first researchers to investigate the properties of the emitted radiation as well as the nature of the decay itself. They were able to distinguish two different types of radiation, which were called alpha and beta. Additionally, they observed the enormous energy released by radioactivity compared to a chemical reaction, discovered the exponential nature of the decay process, developed the concept of the radioactive half-life and found that radioactivity involves the transformation of one element into another.



The Rutherford Collection displays the original apparatus designed, built, and used by Rutherford and his group. The equipment provides a fascinating insight into the work of physicists at the beginning of the 20th century and illustrates how some fundamental discoveries in the field of radioactivity developed.

Ernest Rutherford

Ernest Rutherford (1871 - 1937) was an experimental physicist from New Zealand. After obtaining Bachelor and Master degrees at Canterbury College in Christchurch, he pursued research under J.J. Thomson at Cambridge. In 1898 he got appointed as a professor of physics at McGill University where he worked on research in the new field of radioactivity for which he was awarded the 1908 Nobel Prize in Chemistry. Rutherford moved to the University of Manchester in 1907 before becoming the director of the Cavendish laboratory at Cambridge in 1919. His most notable achievements during that period include the discoveries of the atomic nucleus and the proton, the first nuclear reaction and the formulation of the Rutherford model of atoms.



MCPHERSON COLLECTION

The McPherson Collection comprises a large number of physical apparatus from the history of the Department of Physics at McGill University. Most of the instruments in the areas of mechanics, electricity and magnetism, heat, light and sound were originally used for teaching while some were needed for scientific research. The focus of the collection is on the years from the founding of the department in 1892 to 1920, but it also includes some more modern instruments.

The collection is named after Anna McPherson, the first female professor of physics in the department who was dedicated to improving undergraduate teaching during her long career at McGill University.

Highlights of the McPherson Collection include a first edition of Isaac Newton's book on optics from 1704 documenting his research on the properties of light. Many of the optical instruments in the collection would have been used to teach students about this subject.

The McGill Department of Physics was also world-leading in the research on X-Rays after their discovery in 1895. One of the first medical X-Ray pictures was taken in Montreal and can be found in the museum.



Also noteworthy is the large number of instruments for measuring electromagnetic quantities like current and voltage. From early gold leaf electroscopes to modern equipment they allow for the retracing of how our current understanding of electromagnetism developed.

Additionally, the collection holds many instruments related to the study of sound, most prominently a phonograph from 1879. It is one of the earliest devices to record and replay sound.



Contact

Visits are by appointment. Please email:
curator@physics.mcgill.ca

www.physics.mcgill.ca/museum
Ernest Rutherford Physics Building
3600 Rue University, Montreal, QC, H3A 2T8