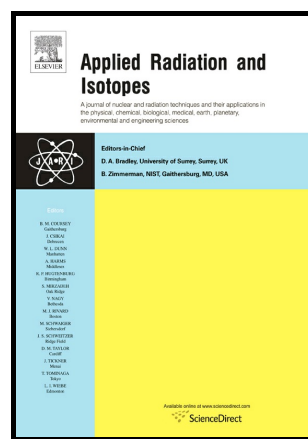


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Introduction

November 7, 2017 marks the 150th anniversary of the birth of Marie Sklodowska Curie (See Figure 1). Her extraordinary accomplishments - the only woman to receive two Nobel Prizes, and the example she set for all scientists have hardly been equaled. Her early work in collaboration with her husband Pierre Curie led to the discovery of the new radioactive elements polonium and radium. The details of the physics and chemistry leading to these discoveries are described in her thesis at the Sorbonne *Radioactive Substances* and in the original French scientific publications *Comptes rendus de l'Académie des sciences (1898)* (Adloff, 1999; Wolke, 1988). The story of her life and times has been the subject of many biographies (Curie, 1923; Reid, 1974; Pflaum, 1989). Her younger daughter Eve Curie wrote the best-selling book *Madame Curie - A Biography* (1937) that was adapted for the 1943 movie starring Greer Garson. In addition to the numerous books and articles for the popular press, there are scholarly publications from historians. An excellent example is *The Curie Laboratory: Radioactivity and Metrology* by Soraya Boudia (1997) which draws on the Curies' notebooks and early correspondence held at the Musée Curie in Paris.

In this account, we will look at the lasting impact of Marie Curie's contributions to science and technology. These contributions extend far beyond the early work resulting in the discovery of radioactivity to include the establishment of accurate methods of measurement of radioactivity and radiations, the birth of the radium industry, Curie's leadership in development of national and international standards, and her contributions to modern medical physics including diagnostic and therapeutic radiology. We will also look at her many efforts to train a generation of medical physicists and radiologists, and her impact on future generations of women in the physical and health sciences.

Curie's scientific breakthroughs

Radiation science was rapidly advancing as the 19th century drew to a close. In 1896, Henri Becquerel's discovery of "Becquerel rays" from uranium came only months after Wilhelm Roentgen's discovery of x rays. Becquerel's work, however, received less attention in the scientific community due to the tremendous public interest in x-ray photographs of the human body. One feature common to both x-rays and those from uranium was their ability to ionize air. The current generated by the ionization could be measured quantitatively by methods under development in France by Pierre and Marie Curie and in the United Kingdom by J.J. Thompson

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