

THE ROLE OF WOMEN IN THE DISCOVERY OF ISOTOPES

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Ninety years after Soddy won the Nobel prize in chemistry for “his investigations into the origin and nature of isotopes”, the quest to expand the nuclear horizon and discover new isotope has regained momentum. After about 10 years of very little progress the discovery rate has increased tremendously during last few years. In 2010 over 100 new isotopes were reported which is the largest number of isotopes discovered in any given year. This increase is primarily due to the beginning of the operation of RIBF at RIKEN and to the technical advances to separate and identify heavy neutron-rich isotopes following uranium fragmentation at GSI.

We recently completed a project to document the discovery of all isotopes analyzing the over 3000 presently known isotopes. These data and some additional information are currently being published in a series of articles in Atomic Data and Nuclear Data Tables (see for example [1]).

Women have played important roles in these discoveries. We credit Marie Curie with the discovery of one of the first isotopes, ^{210}Po [2] in 1898. Irene Curie was the first to observe artificial radioactivity by bombarding boron, magnesium, and aluminium with α -particles from polonium producing the new isotopes ^{13}N , ^{27}Al , and ^{30}Mg , respectively [3]. More recently Dominique Guillemaud-Mueller and Monique Bernas continued the tradition of successful women scientists in France. Dominique published the discovery of 35 new isotopes in two papers [4,5]. Monique was the first author of the two papers reporting the most new isotopes ever [6,7]. She is also second on the list of most isotopes discovered as first author with 110 only behind Frederick Aston.

It is difficult to extract an exact number of how many women were involved in the discovery of isotopes because most publications list only the initials of the author's first name. However, in the last 25 years at least 20% of all isotopes discovered have been published in papers with a woman as the first author.

References

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