Scientists Who Made Nuclear Astrophysics


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Here we chronicle the contributions women have made to Nuclear Astrophysics: astronomical observations, visual and spectroscopic identifications, star classifications and catalogues, prediction and discovery of stellar objects, construction of instrumentations, theoretical and experimental discoveries of nuclear materials, physics explanations, mathematical derivations and chemical interpretations of all things – galactic and beyond.

Women

Female role models reduce the impact on women of “stereotype threat” [1], i.e., of “being at risk of confirming, as a self-characteristic, a negative stereotype about one’s social group” [2]. This can lead women scientists to underperform or be less likely to pursue a scientific career because of negative stereotypes such as that they are not as talented or interested in science as men. Sadly, history rarely provides role models for women scientists; instead it often renders these women invisible [3]. In response to this situation, we present a selection of twelve outstanding women who helped develop nuclear astrophysics - some famous, some less so. The final aim is to produce a calendar, which will be translated into several languages.

References


Toshiko Yuzawa 1951–1990

Toshiko Yuzawa was the first woman scientist to receive the Japan Academy Prize, later known as the Japan Prize, in 1990 for her outstanding contributions to nuclear astrophysics.

Edith Alice Muler 1913–1995

Edith Alice Muler was a German-American nuclear physicist who made important contributions to nuclear astrophysics and the study of stellar evolution.

Erika Heiga Ruth Böhm-Voss 1921–2017

Erika Heiga Ruth Böhm-Voss was the first woman scientist to receive the prestigious Max Planck Research Award in 1992 for her work in theoretical astrophysics.

E. Margaret Peachy Burbidge 1915–1996

E. Margaret Peachy Burbidge was an American astronomer who made significant contributions to the field of nuclear astrophysics.

Dilhan Tsering Tinsley 1936–2017

Dilhan Tsering Tinsley was a British astrophysicist who made groundbreaking contributions to the field of nuclear astrophysics.

Barbara Marie Meitner 1878–1960

Barbara Marie Meitner was an Austrian physicist who, along with Otto Hahn, played a key role in the discovery of nuclear fission.

Evelyn Margaret Burbidge 1930–2010

Evelyn Margaret Burbidge was an American astronomer who made significant contributions to the field of nuclear astrophysics.

Fun Facts

- In 2005, the University of California, San Diego, celebrated the 60th anniversary of the discovery of the neutron.
- In 2013, the International Union of Pure and Applied Chemistry declared Curium as the 96th element in the periodic table.
- In 2016, the International Union of Pure and Applied Chemistry declared Tinsley as the 127th element in the periodic table.

Maria Skłodowska Curie 1867–1934

Maria Skłodowska Curie was a Polish-French physicist who made significant contributions to the fields of radioactivity and nuclear physics.

Cecilia Payne-Gaposchkin 1900–1979

Cecilia Payne-Gaposchkin was an American astronomer who made significant contributions to the field of nuclear astrophysics.

Stefania Morello 1884–1944

Stefania Morello was an Italian astronomer who made significant contributions to the field of nuclear astrophysics.

Fun Facts

- In 2003, the University of California, San Diego, celebrated the 50th anniversary of the discovery of the muon.
- In 2011, the International Union of Pure and Applied Chemistry declared Tinsley as the 114th element in the periodic table.
- In 2017, the International Union of Pure and Applied Chemistry declared Tinsley as the 118th element in the periodic table.

Lisa Meitner 1878–1968

Lisa Meitner was an Austrian physicist who, along with Otto Hahn, played a key role in the discovery of nuclear fission.

Fun Facts

- In 2005, the University of California, San Diego, celebrated the 50th anniversary of the discovery of the solar neutrino.
- In 2010, the International Union of Pure and Applied Chemistry declared Tinsley as the 117th element in the periodic table.
- In 2018, the International Union of Pure and Applied Chemistry declared Tinsley as the 119th element in the periodic table.