**Vera Cooper Rubin**

Vera Rubin is a member of the national Academy of Science, of the Pontifical Academy of Science, and of the American Philosophical Society. Rubin’s work focused on the field of astronomy with the emphasis on the existence of the dark matter in the universe.

July 23, 1928 – December 25, 2016

* B.A. Degree in Astronomy, Vassar College, 1948
* M.A. in Physics and Quantum Physics, Cornell University, 1951
* Ph.D. in the Fluctuations in the Space Distribution of the Galaxies, Georgetown University, 1954

**Biography**

Vera Rubin was born on July 23, 1928, in Philadelphia, Pennsylvania. She was the younger of two daughters. Her father, Philip Cooper, was an electrical engineer. After moving to Washington, D.C. when Rubin was ten, she began developing an interest in astronomy. Her father always encouraged her interest in astronomy. He took her to attend many of his amateur astronomy meetings at the Bell Telephone where he worked. He also assisted her in creating her first homemade telescope.

Rubin got her bachelor degree in astronomy from Vassar College in 1948 and was the only graduate with that degree in her class. She made an attempt to enroll in the graduate studies at Princeton which was met by complete ignorance due to her being a woman. Later, she got her M.A. degree in Physics and Quantum Physics from Cornell University in 1951. Three years later, Rubin completed her doctorate degree in Fluctuations in the Space Distribution of the Galaxies from Georgetown University. In the year 1954, Rubin’s dissertation concluded that the galaxies are clumped together rather than floating randomly in space.

**Research**

Rubin realized early on that women were not accepted in the field of science. This realization shaped a big part of her work in the later years where she fought for women rights in the science field. While Rubin’s research work focused on the fluctuations in the space distribution of the galaxies, her master’s thesis examined the possibility of the existence of a bulk rotation in the universe. By observing the flow in motion in the galaxies, she noted a deviation from the Hubble flow. Rubin argued that the galaxies might be rotating around unknown centers, but her master’s paper was rejected by both the Astronomical Journal and the Astrophysical Journal. Later, Rubin’s work focused on studying galaxy rotation curves. She expressed that galaxies have at least six times dark matter than ordinary matter. She explained that if that dark matter did not exist, the galaxies would fly apart due to their fast rotation. In the 1970s, Rubin provided more evidence of the existence of dark matter and her work led to the modification of gravity theories.

**Awards**

* American Association of Physics Teachers, Richtmeyer Memorial Award, 2008/2009
* American Astronomical Society, Henry Norris Russell Lectureship, 1994
* Peter Gruber Foundation, Cosmology Prize, 2002
* National Academy of Sciences, National Medal of Science, 1993
* National Academy of Sciences, James Craig Watson Medal, 2004
* National Radio Astronomy Observatory, Jansky Lectureship, 1994
* Pontifical Academy of Sciences, Gold Medal
* Royal Astronomical Society, Gold Medal, 1996

Information on this biography was taken from the following websites:

<http://www.phys-astro.sonoma.edu/brucemedalists/rubin/>

<https://en.wikipedia.org/wiki/Vera_Rubin#Awards_and_honors>

<http://www.amnh.org/explore/resource-collections/cosmic-horizons/profile-vera-rubin-and-dark-matter/>