

Vera Rubin

(1928 - 2016)

Discovered Dark Matter



Main image: Vera Rubin (left) and John Glenn (right) [Jeremy Keith, CC BY 2.0].
Background: Galaxy [Public Domain].

Vera Cooper Rubin became fascinated with space and astronomy as a child. In 1948 she graduated from the prestigious US women's college Vassar where she had received a scholarship and was the only astronomy major. When applying to graduate schools, Princeton informed her that the school "does not accept women" in the astronomy program – this rule remained until 1975. Rubin went on to study physics at Cornell, and then Georgetown University, where she received her PhD in 1954.

Working with her colleague Kent Ford in the 1970s, Rubin showed that the speed at which stars orbit around the centres of spiral galaxies is just as high at the fringes of the galaxies. This finding contradicted the Newtonian theory of gravitation. The only plausible explanation was that the mass of the galaxies must extend invisibly beyond the most distant stars. This excess mass is now known as dark matter, a concept that had first been proposed by Fritz Zwicky in the 1930s. Rubin's calculations indicated that galaxies must contain five to ten times as much dark matter as ordinary matter and these results were confirmed over subsequent decades.

Rubin was a tireless advocate of women in science and a passionate mentor of young women astronomers.

