Willem De Sitter Biography

Willem De Sitter

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Biography

Born on May 6, 1872, at Sneek, Netherlands, Willem De Sitter observed the sky from the northern latitudes of Europe all the way down to Cape Town, South Africa.

De Sitter was especially interested in observing the moons of Jupiter. By noting how the gravitation of each moon interacts with its neighbor, it is possible to calculate the mass of the moons. The calculations are complex, but De Sitter's expertise in celestial mechanics and his mathematical precision enabled him to contribute new data on the moons, which he studied for many years.

In 1905 De Sitter took note of Albert Einstein's special theory of relativity, and brought it to the attention of English-speaking scientists, using it to account for small deviations in the motions of the moon and planets. Following up on Einstein's 1916 general theory of relativity, De Sitter examined the astronomical consequences of Einsteinian gravitational attraction.

Einstein realized that in a static universe, repulsion between distant masses would have to be equal to gravitational attraction. So he had to introduce a term he called the cosmological constant into his theory to represent this repulsion though there was no such force known. De Sitter keenly considered another possibility: if the entire universe were *expanding* outward enough to compensate for gravitational attraction, Einstein's cosmological constant would not be necessary. This idea not only improved Einstein's theory, it also matched observations of red shift soon made by Vesto Melvin Slipher and Edwin Powell Hubble. The big bang theory, which is currently accepted as the correct description of the origin of the universe, has its beginnings in De Sitter's interpretation of Einstein.

De Sitter died at Leiden, Netherlands, at the age of 62 on November 20, 1934.