+ Researchers

Other female astronomers who investigated the stars:

Maria Mitchell
(United States, 1818-1889)
First woman academic astronomer in the United States. Worked in many astronomy related fields including computing the position of Venus.

Williamina Paton Fleming
(Scotland, 1857-United States, 1911) American astronomer of Scottish origin. Discovered 59 nebulas, 310 variable stars and 10 novas. Worked on determining the spectra of white dwarfs, very faint stars that are in the final stages of evolution.

Antonia Maury
(United States, 1866-1952)
A woman astronomer at the Harvard Observatory. She established an alternative star classification system that could differentiate between giant stars and dwarf stars with the same type of spectrum. Today we know this as the luminosity class. Her methods were not approved by the Director of the Observatory and Maury ultimately abandoned her work. In 1922 the International Astronomical Union used some of her ideas in its official classification of stars.

Paris Pismis
(Turkey, 1911-México, 1999)
Her work focused on research into galaxies and nebulae. Discovered 24 clusters.

Annie Jump Cannon
(United States, 1863-1941)
A woman astronomer working at the Harvard Observatory. Catalogued over 225,000 stars. Established a classification system with seven main types based on the temperature of stars, which is still in use today.

Cecilia Payne-Gaposchkin
(England, 1900-United States, 1979)
Although she was born in England, she pursued her career in the United States. She was the first woman to receive a Doctorate and a post of Professorship at Harvard University. She established that stars are mainly composed of hydrogen.

A★ SHE ASTRONOMER

Gas Spheres

Stars are enormous spheres of gas that emit immense quantities of energy produced in the nuclear reactions occurring in their interior.

The basic parameters of stars are:

- ***Luminosity:*** gives us information about their energy.
- ***Mass:*** tells us how much material they contain.
- ***Temperature:*** stars have different colours depending on the temperature of their surface. The hottest stars are blue and the coldest a reddish colour.
- ***Age:*** tells us about the point they have reached in their evolution.
- ***Radius:*** tells us their size.
- ***Spectral type:*** identifies their temperature and chemical composition.

The star with greatest apparent brightness is Sirius, in the Canis Major constellation 8.6 light years from the Earth.

Our nearest star after the Sun is Proxima Centauri, which is 4.3 light years away. It is a small dim star that is not visible to the naked eye and it was discovered by accident.

ASTRONOMICAL MILESTONES IN THE STUDY OF THE STARS

20,000 BC 15,000 BC Paintings of stars and what could be interpreted as constellations were produced in various prehistoric caves.

15,000 BC Paintings in the Lascaux Cave may represent constellations.

1302 BC is observed for the first time, in China.

Around 320 BC A list of 1,464 stars in 284 constellations is compiled in China.

1054 Chinese astronomers observe and describe a supernova, today known as the Crab Nebula, in the Taurus constellation.

1259 The Nasir al-Din al-Tusi observatory is established at Maragheh, Persia.

1572 Proof is obtained that a supernova is as far away as other stars.

1596 The variable star Mira is discovered.

1603 Bayer publishes his map of the stars, which uses Greek letters to denote the apparent brightness of stars.

1718 The movement of the stars is discovered.

1838 The distances to nearby stars are calculated for the first time.

1905 Giant and dwarf stars are discovered.

1910 Williamina Paton Fleming publishes her discoveries on the properties of white dwarf spectra.

1911 The relationship between the colour of stars and their luminosity is discovered.

1925 Cecilia Payne Gaposchkin produces the first explanation of the internal structure of stars.

1967 Jocellyn Bell discovers pulsars whilst working on her doctoral thesis. Her thesis supervisor is awarded the Nobel Prize.

1987 A supernova SN1987A estala. It is the first supernova visible to the naked eye since 1604.

2009 Discovery of the oldest and remotest supernova 11,000 million light years away.