

# SATURN

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Known from prehistoric ages, **Saturn** is one of the most beautiful sights in the solar system, having its own light, and as mysterious as the other planets.

In 1610, by using a telescope, Galileo Galilei points out the mysterious optical appearance and disappearance of the rings of this planet and enthusiastically tells his best friend, Kepler, about his discovery. Initially, Galilei thought that Saturn is an ordinary planet due to the protuberances on its sides but later on it was proved that, at certain time intervals, as they have a special positioning from the Earth, the rings cannot be seen since they are thin and may disappear from the general sight of this planet.

Half a century later, in 1665, the Dutch astronomer Christian Huyghens also underlines the discovery of Saturn's rings.

The origins of Saturn's rings are still a mystery and scientists from the entire world have considered that:

- The rings were formed after a cosmic cataclysm which took place after Saturn was formed, by means of the disintegration of a massive ice block of hundreds or thousands kilometres diameter;
- The planet might have kept one of its natural satellites in a time when all the gaseous giants have lost theirs and the rings which today gravitate around Saturn might have been formed when this satellite was destroyed, in other words when a piece of a meteorite collided with one of the moons of the planet. Due to the fact that the moon orbited at the right distance from Saturn at that particular moment when it was hit, the small particles were not blown but formed the rings;
- The rings were formed after the collision of the planet with a satellite with a size similar to Titan's.

The scientists also agreed upon the following statements:

- Saturn has six main rings denominated according to the order of their discovery, namely D, C, B, A, F, G and E and each ring includes thousands of small rings;
- The rings are the largest planetary ring system in the Solar System;

- The diameter of the entire ring system is 480 000 kilometres but they are only tens of meters thick;
- The rings are huge – the largest one has a 273 588 kilometres diameter and still they are very thin, with only 200 meters thickness;
- The rings are not solid, as they seem from the Earth but comprise floating pieces of ice, rocks and dust, which vary in size;
- The rings are not perfect circles but have bends in them caused by the pull of gravity from nearby satellites;
- The rings also contain spokes – composed from very fine dust particles floating above the rings and are attracted by static electricity and are pulled up.

Nowadays, astronomers are offered extraordinary scientific chances due to the high technology and to the space missions that have been accomplished. Cassini spacecraft, currently exploring Saturn and its satellites will definitely transmit us the biggest secrets of Saturn's rings.