

How did our Solar System form?

Our solar system formed about 4.6 billion years ago from a dense cloud of interstellar gas and dust. The cloud collapsed, possibly due to the shockwave of a nearby exploding star, called a supernova. When this dust cloud collapsed, it formed a solar nebula - a spinning, swirling disk of material.

When did the Solar System start?

There is evidence that the formation of the Solar System began about 4.6 billion years ago with the gravitational collapse of a small part of a giant molecular cloud. [1]

What events shaped our Solar System?

A condensed timeline of the events that shaped our solar system. The Big Bang brought the Universe into existence 13.8 billion years ago. Our solar system formed much later, about 4.6 billion years ago. It began as a gigantic cloud of dust and gas created by leftover supernova debris--the death of other stars created our own.

Did the Solar System ever form a planet?

And like that, the solar system as we know it today was formed. There are still leftover remains of the early days though. Asteroids in the asteroid belt are the bits and pieces of the early solar system that could never quite form a planet. Way off in the outer reaches of the solar system are comets.

When did ring formation occur in the Solar System?

Although theoretical models indicated that the rings were likely to have formed early in the Solar System's history, [115] data from the Cassini-Huygens spacecraft suggests they formed relatively late. [116] Formation of the Solar System after gas and dust coalesced into a protoplanetary disk.

How old is the Solar System?

To estimate the age of the Solar System, scientists use meteorites, which were formed during the early condensation of the solar nebula. Almost all meteorites (see the Canyon Diablo meteorite) are found to have an age of 4.6 ± 0.1 billion years, suggesting that the Solar System must be at least this old. [141]

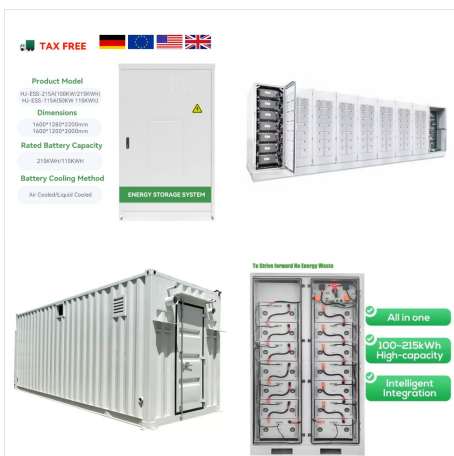
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The solar system as we know it began life as a vast, swirling cloud of gas and dust, twisting through the universe without direction or form. About 4.6 billion years ago, this gigantic cloud was transformed into our Sun. The processes that followed gave rise to the solar system, complete with eight planets, 181 moons, and countless asteroids.



Solar system - Origin, Planets, Formation: As the amount of data on the planets, moons, comets, and asteroids has grown, so too have the problems faced by astronomers in forming theories of the origin of the solar system. In the ancient world, theories of the origin of Earth and the objects seen in the sky were certainly much less constrained by fact. Indeed, a a?|



Some 4.6 billion years ago, our Sun was born from a cloud of interstellar gas and dust. It came from a giant molecular cloud a?? a collection of gas up to 600 light-years in diameter with the mass

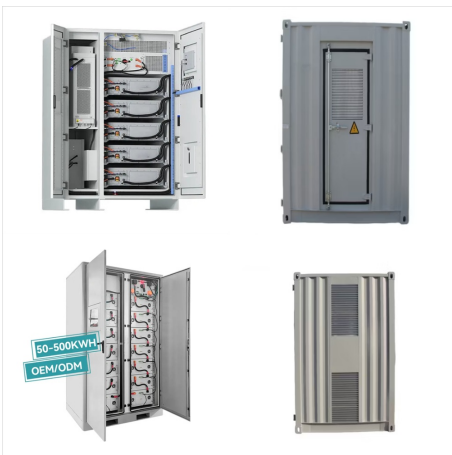
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Star Formation. At the heart of our solar system is a star. Stars of any type can host a planetary system and the most common type of stars in our galaxy are small, cool red dwarfs. The ultimate fate of a star, from birth to death, are determined by its initial mass.



. The solar system's several billion comets are found mainly in two distinct reservoirs. The more-distant one, called the Oort cloud, is a spherical shell surrounding the solar system at a distance of approximately 50,000 astronomical units (AU) a??more than 1,000 times the distance of Pluto's orbit. The other reservoir, the Kuiper belt, is a thick disk-shaped zone whose main a?|



Our solar system began to form around 5 billion years ago, roughly 8.7 billion years after the Big Bang. A solar system consists of a collection of objects orbiting one or more central stars. All solar systems start out the same way. They begin in a cloud of gas and dust called a nebula. Nebulae are some of the most beautiful objects that have

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Our solar system is moving with an average velocity of 450,000 miles per hour (720,000 kilometers per hour). But even at this speed, it takes about 230 million years for the Sun to make one complete trip around the Milky Way. The Sun formed about 4.6 billion years ago in a giant, spinning cloud of gas and dust called the solar nebula. As



Our solar system formed from the gravitational collapse of a "dense" giant molecular cloud of gas and dust, composed mainly of hydrogen, a bit of helium, and about one per cent of heavier

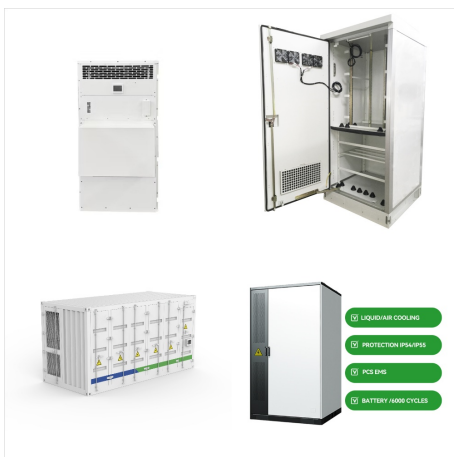


At least Uranus and Neptune form closer to the Sun than where they are today. One or more ice giants may have also formed that were later ejected from the solar system. 4.55 billion years ago: Let there be light: The Sun begins fusing hydrogen into helium. 4.5 billion years ago: Mercury, Venus, Earth, and Mars form. A Mars-sized planet collides

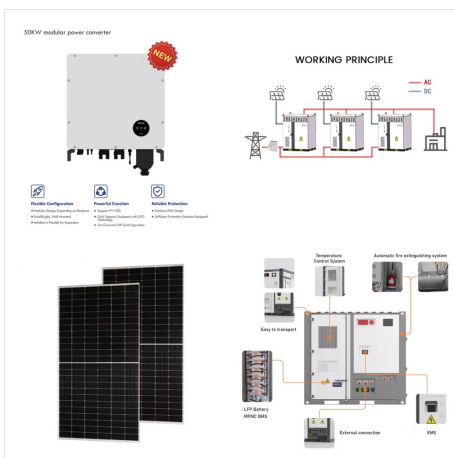
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Rotation of the Solar Nebula We can use the concept of angular momentum to trace the evolution of the collapsing solar nebula. The angular momentum of an object is proportional to the square of its size (diameter) divided by its period of rotation ($D^2 P$) ($D^2 P$). If angular momentum is conserved, then any change in the size of a nebula must be compensated for by a proportional a ?



Astronomers, however, are still hunting for another possible planet in our solar system, a true ninth planet, after mathematical evidence of its existence was revealed on Jan. 20, 2016. The



. Big Ideas: The solar system consists of Earth and seven other planets all spinning around the Sun. Planets are big, round worlds floating in space. The Earth is a planet that goes around a much larger star called the Sun. The Sun and planets formed from a a ?

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Our solar system formed about 4.5 billion years ago from a dense cloud of interstellar gas and dust. The cloud collapsed, possibly due to the shockwave of a nearby exploding star, called a a?|



The Solar System [d] is the gravitationally bound system of the Sun and the objects that orbit it. [11] It formed about 4.6 billion years ago when a dense region of a molecular cloud collapsed, forming the Sun and a protoplanetary disc. The a?|



While astronomers have discovered thousands of other worlds orbiting distant stars, our best knowledge about planets, moons, and life comes from one place. The Solar System provides the only known example of a habitable planet, the only star we can observe close-up, and the only worlds we can visit with space probes. Solar System research is essential for understanding a?|

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timeline for the formation of our solar system. Our solar system began as a collapsing cloud of gas and dust over 4.6 billion years ago. Over the next 600 million years, called by geologists the Hadean Era, the sun and the planets were formed, and Earth's oceans were probably created by cometary impacts. Comets are very rich in water ice.



How Our Solar System Formed. Around 4.6 billion years ago, the early solar system began to take shape from a massive cloud of gas and dust known as the solar nebula. Triggered by an external force a?? possibly a nearby supernova a?? the nebula collapsed under the force of gravity and started spinning, due to the conservation of angular momentum

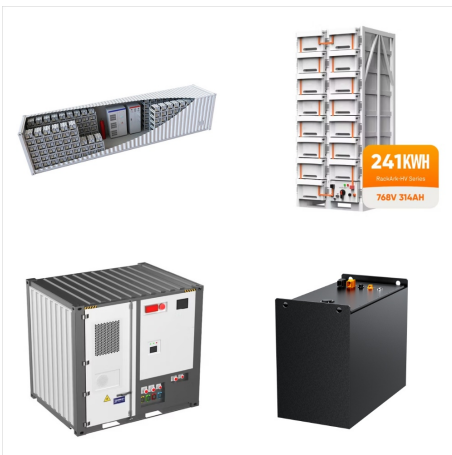


These icy wanderers, remnants of the debris cloud that once encircled our newborn Sun, give astronomers clues to the formation and evolution of our solar system. Most comets spend their lives beyond the orbit of Neptune, where they were pushed by gravitational interactions with the newly formed giant planets during the early development of the

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This is how Jupiter, Saturn, Uranus and Neptune, the gas giants of our solar system, are thought to have formed. Jupiter and Saturn are thought to have formed first and quickly within the first 10 million years of the solar system. In the warmer parts of the disk, closer to the star, rocky planets begin to form.



The Earth formed over 4.6 billion years ago out of a mixture of dust and gas around the young sun. It grew larger thanks to countless collisions between dust particles, asteroids, and other growing planets, including one last giant impact that threw enough rock, gas, and dust into space to form the moon.



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Our Solar System, and all other star systems, form from a collapsing nebula. Often called stellar nurseries, nebulae are the birthplace of stars. They are made up of mostly hydrogen but also contain other matter like gases, dust, ice and rock. The gravity of the nebula pulls this matter into the centre, and the nebula experiences a gravitational collapse. If the compression raises the a?|

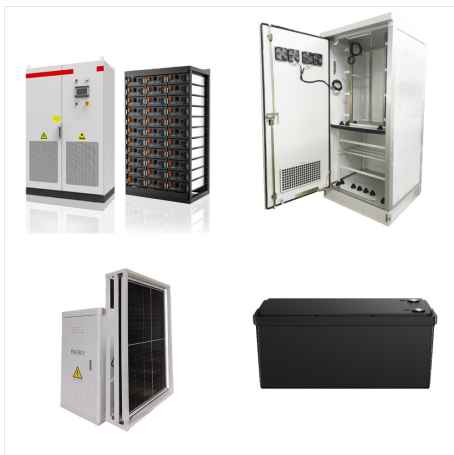


Transcript (English) - [Narrator] Our solar system is one of over 500 known solar systems in the entire Milky Way galaxy. The solar system came into being about 4.5 billion years ago when a cloud of interstellar gas and dust collapsed, resulting in a solar nebula, a swirling disc of material that collided to form the solar system.

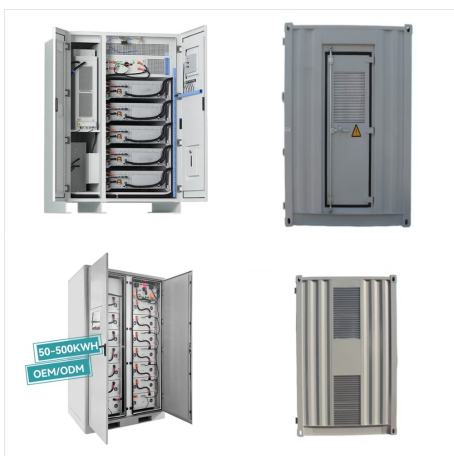
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The planets formed in intervals, not altogether, as was previously thought," said Dr. Tagir Abdylmyanov, Associate Professor from Kazan State Power Engineering University in Russia. He believes that the Sun sent out shockwaves in the solar system. The solar system is the eight major planets and their moons in orbit around the Sun.

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According to this hypothesis, the Sun and the planets of our solar system formed about 4.6 billion years ago from the collapse of a giant cloud of gas and dust, called a nebula. The nebula was drawn together by gravity, which released gravitational potential energy. As small particles of dust and gas smashed together to create larger ones, they



The Sun formed 4.6 billion years ago from a gigantic collapsing cloud of gas and dust called the solar nebula. When you become a member, you join our mission to increase discoveries in our solar system and beyond, elevate the search for life outside our planet, and decrease the risk of Earth being hit by an asteroid.