

# How did our solar system come to be?

It all began about 4.6 billion years ago in a wispy cloud of gas and dust.

At some point, part of the cloud collapsed in on itself—possibly because the shockwave of a nearby supernova explosion caused it to compress.

The result: a flat spinning disk of dust and gas.

When enough material collected at this disk's center, nuclear fusion began. Our sun was born. It gobbled up 99.9% of all the material.

These clumps became planets, dwarf planets, asteroids, comets, and moons.

Nuclear fusion occurs when hydrogen atoms fuse into helium.

The material left behind by the sun clumped together into bigger and bigger pieces.

Only rocky things could survive close to the sun, so gaseous and icy material collected further away. That's how our solar system came to be the place it is today!

Comets and asteroids are the left over remains of the solar system's formation.

4.6 Billion Years Ago

Present

# Origin And Evolution Of The Solar System

**RS Peters**

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## **Origin And Evolution Of The Solar System:**

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only truly detailed exploration of the origins of our Solar System written by an authority in the field Unlike other authors Michael Woolfson focuses on the formation of the solar system engaging the reader in an intelligent yet accessible discussion of the development of ideas about how the Solar System formed from ancient times to the present Within the last five decades new observations and new theoretical advances have transformed the way scientists think about the problem of finding a plausible theory Spacecraft and landers have explored the planets of the Solar System observations have been made of Solar System bodies outside the region of the planets and planets have been detected and observed around many solar type stars This new edition brings in the most recent discoveries including the establishment of dwarf planets and challenges to the standard model of planet formation the Solar Nebula Theory While presenting the most up to date material and the underlying science of the theories described the book avoids technical jargon and terminology It thus remains a digestible read for the non expert interested reader whilst being detailed and comprehensive enough to be used as an undergraduate physics and astronomy textbook where the formation of the solar system is a key part of the course Michael Woolfson is Emeritus Professor of Theoretical Physics at University of York and is an award winning crystallographer and astronomer

**From Dust to Life** John Chambers, Jacqueline Mitton, 2017-05-02 The remarkable story of how our solar system came to be The birth and evolution of our solar system is a tantalizing mystery that may one day provide answers to the question of human origins From Dust to Life tells the remarkable story of how the celestial objects that make up the solar system arose from common beginnings billions of years ago and how scientists and philosophers have sought to unravel this mystery down through the centuries piecing together the clues that enabled them to deduce the solar system s layout its age and the most likely way it formed Drawing on the history of astronomy and the latest findings in astrophysics and the planetary sciences John Chambers and Jacqueline Mitton offer the most up to date and authoritative treatment of the subject available They examine how the evolving universe set the stage for the appearance of our Sun and how the nebulous cloud of gas and dust that accompanied the young Sun eventually became the planets comets moons and asteroids that exist today They explore how each of the planets acquired its unique characteristics why some are rocky and others gaseous and why one planet in particular our Earth provided an almost perfect haven for the emergence of life From Dust to Life is a must read for anyone who desires to know more about how the solar system came to be This enticing book takes readers to the very frontiers of modern research engaging with the latest controversies and debates It reveals how ongoing discoveries of far distant extrasolar planets and planetary systems are transforming our understanding of our own solar system s astonishing history and its possible fate

**ORIGIN & EVOLUTION OF THE SOLAR SYSTEM.** F.L. WHIPPLE, **Solar System Evolution** Stuart Ross Taylor, 2001-09-06 Publisher Description *Planetary Geology in the 1980s* Joseph Veverka, 1985 **Creation** Barry R. Parker, 2013-11-11 I remember once watching a presentation of the creation of the

universe in a planetarium It was a fascinating experience lights flashing particles appearing to rush by as an explosive roar

echoed throughout the planetarium Then suddenly black ness And after a few seconds tiny lights stars blinking into existence I tried to imagine myself actually going back to this event Was this really what it was like It was an interesting facsimile but far from what the real thing would have been like The creation of the universe is an event that is impossible to imagine accurately Fortunately this has not discouraged people from wondering what it was like In Creation I have attempted to take you back to the beginning the big bang explosion so that you can watch the universe grow and evolve Starting with the first fraction of a second I trace the universe from its initial dramatic expansion through to the formation of the first nuclei and atoms From here I go to the formation of galaxies and the curious distribution they have taken in space Finally I talk about the formation of elements in stars and the first life on the planets around them

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members of the Solar System have been studied and the audience to whom the volume is addressed is in addition to the experts mailllly graduate and post graduate students attending courses in Earth Sciences Physics and Astro nomy The aim we intend to achieve in editing this volume is to offer to planetologists an overview of the present state of knowledge using the comparative study of the planets as a basis on which to build the themes treated We think it is one of the fe publications of this type which includes all the subjects concerning the study of a planet We hope we have succeeded in conveying through the book the message which was clearly expressed by the lecturers of the ASI in Vulcano what counts most at this stage of planetary research is to be able to single out the fun damental problems and choose the appropriate set of data to use in approaching these problems

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