

# 太阳系探索和地外生命搜索

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## 摘 要

综述了国际上进行太阳系空间探测的现状,着重介绍了探测月球、火星、小行星和外行星的意义、目的、手段和成就。择要介绍了美国宇航局、欧洲空间局、俄罗斯和日本近年来和下世纪初的空间计划。论及地外生命搜索,主要介绍了火星上水和生命搜索进展、地外生命搜索的 SETI 计划及其发展、物理学家与生物学家有关搜索成功的可能性的争论,以及太阳系外行星系统的发现。

太阳系外行星系统的发现是当代天文学最时髦的、也将是未来 21 世纪成果最丰富的研究领域之一。目前,已经发现了大约 50 个太阳系外行星系统。太阳系外行星系统的发现与地外生命搜索研究是密不可分的。这项研究近 20 年来发展较快。它的研究也促进了航天学、宇宙化学、天文生物学乃至哲学等其他学科的发展。

**关键词** 空间探索 — 太阳系 — 太阳系外行星

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## Solar System Exploration and Extraterrestrial Life Search

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## Abstract

A review of the current situation of international solar system exploration is given. It is concentrated on the presentations of scientific objective, significance, technique and achievement for the exploration of Moon, Mars, Minor planets and outer planets. A brief introduction to the space projects of NASA, ESA, Russia and Japan in the recent years and early 21th century is also outlined. In the field of extraterrestrial life search, the recent progress in the search for water

and life in Mars, SETI program and its development, the controversy of the possibility of success of those projects among physicists and biologists, and the discovery of extrasolar planets.

The detection of extrasolar planets is one of the most impressive results in modern astronomy, and it will become one of the most remarkable research fields in the 21th century. At present, about 50 extrasolar planets have been discovered. The discovery of extrasolar planets is closely related to the search of extraterrestrial life. Great progress has been achieved in the past two decades. It has promoted the development of many other scientific fields, such as astronautics, cosmochemistry, astrobiology and even philosophy.

**Key words** space exploration—solar system—extrasolar planets