

||||| 特集：宇宙生物学実験の新たな展開 |||||
(解説)

宇宙放射線の生物影響研究の意義：
宇宙放射線と微小重力の相互作用に関する研究の新たな展開

大西 武雄・高橋 昭久

**The Significance of Research on the Biological Effects of Space Radiation:
New Findings Concerning Interactions between Space Radiation and Microgravity**

Takeo OHNISHI and Akihisa TAKAHASHI

Abstract

The United States of America, Japan, Canada, Russia, and European countries are cooperating to construct and utilize an International Space Station (ISS). The ISS will be an important facility for space experiments, and will also serve as a symbol of international cooperation and worldwide peace. A centrifugation system is scheduled to be included as part of a laboratory designed to pursue gravitational biology research in the ISS program. Many scientists expect to make use of this centrifuge system for space experiments in orbit in a space environment which will be subjected to microgravity and space radiation. Astronauts have been constantly exposed to space radiation at a dose rate 100 times higher than at the Earth's surface, and thus it is desirable to study the effects of space radiation to learn what the effects will be on human health. It is extremely difficult to reproduce a space radiation environment in a laboratory on the Earth's surface. In addition, it has been reported that the biological effects of space radiation are modified by microgravity. In order to understand the biological effects of space radiation and any interaction with microgravity, the ISS centrifugation system will be a critical tool, and it is hoped that this system will be in operation as soon as possible.