Paper ID: 77727
student

IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
Life and Physical Sciences under reduced Gravity (7)

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# LIFE AND PHYSICAL SCIENCES UNDER REDUCED GRAVITY A DETAILED REVIEW

**Abstract**

The effects of reduced gravity on life and physical sciences have been the subject of extensive research in the fields of space biology and space physics. The absence of gravity or the reduced gravitational force in spaceflight can have profound effects on various biological and physical processes that are not observed on Earth. This paper reviews the current knowledge of the effects of reduced gravity on life and physical sciences, including cell and tissue cultures, microbiology, plant growth, and fluid physics. Various research platforms, such as the International Space Station (ISS) and parabolic flight campaigns, have been used to study the effects of reduced gravity on life and physical sciences. The use of advanced technologies, including 3D printing, in-situ analytical techniques, and gene expression analysis, has enabled researchers to gain a deeper understanding of the effects of reduced gravity on biological and physical systems.

The results of these studies have not only advanced our understanding of the fundamental principles of life and physical sciences but also have important implications for space exploration, including the development of new technologies for space agriculture and bioregenerative life support systems. In conclusion, research on the effects of reduced gravity on life and physical sciences is crucial for future space exploration and has significant potential for applications on Earth.