

30th IAA SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)
Small Space Science Missions (2)

Author: Ms. Rameela Ramesh
United Arab Emirates, rameela.workmail@gmail.com

THE FUTURE OF ASTRONOMY: ADVANCEMENTS IN CUBESAT TECHNOLOGY

Abstract

This paper provides an overview of the past and future of CubeSats and their potential for astronomy missions. CubeSats, small, modular spacecraft with a 10 x 10 x 10 cm cube design, have evolved significantly since their inception in 1999. CubeSats now come in various sizes and configurations, including 1U, 2U, 3U, 6U, and 12U formats, among others, and have become a versatile platform for conducting scientific research.

While CubeSats offer several advantages, such as lower costs and greater accessibility, they also have limitations. One significant limitation is their small size and limited capabilities. The paper reviews strategies for overcoming these limitations, such as using inter-satellite communication and miniaturized scientific instruments. Additionally, the paper presents recommendations for potential research areas suitable for astronomy CubeSat missions, such as studying the atmospheres of exoplanets and detecting gravitational waves. One potential research area for CubeSat astronomy missions is the study and discovery of exoplanets. The paper discusses the potential for CubeSats to conduct the microlensing method. Another potential research area for CubeSat astronomy missions is the detection of gravitational waves. A network of CubeSats in orbit could work together to detect and study gravitational waves, complementing the observations made by ground-based detectors such as LIGO and Virgo.

In conclusion, CubeSats offer an exciting opportunity for conducting astronomy missions, and their future prospects are bright. By addressing the limitations of CubeSats and investing in research and development, CubeSats can contribute significantly to our understanding of the universe. With new technologies and advancements in design, CubeSats are becoming increasingly capable, enabling a wider range of scientific applications. However, increased investment in CubeSat research and development is necessary to address their limitations and enable continued scientific progress in this exciting field.