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RESEARCH ON CONTROL TECHNOLOGY OF REUSABLE LUNAR SURFACE SPACECRAFT

Abstract

Research on the control technology of reusable lunar surface spacecraft is an important area of study in the field of space exploration. This paper covers several aspects related to this topic. Firstly, the challenges faced in controlling spacecraft in the lunar environment, such as low gravity, lack of atmosphere, and extreme temperature changes, are discussed. Secondly, different types of control systems used in spacecraft, including autonomous systems, manual control, and a combination of both, are analyzed. Thirdly, various algorithms and techniques used for spacecraft guidance, navigation, and control, such as Kalman filtering, model predictive control, and fuzzy logic systems, are explored in depth. Finally, the future prospects and potential applications of reusable lunar spacecraft, including human exploration and scientific research, are discussed.