

14th HUMAN EXPLORATION OF THE MOON AND MARS SYMPOSIUM (A5)
Joint session on Human and Robotic Partnerships to Realize Space Exploration Goals (3.-B3.6)

Author: Dr. ZHANG XIAO DONG
CAST, China, zxd_bupt@yahoo.com.cn

THE RESEARCH OF CONTROL SYSTEM ARCHITECTURE OF CHINESE SPACE REMOTE MANIPULATOR

Abstract

As the development of chinese space station, the Space Remote Manipulator will play a critical role in the assembly, maintenance and servicing of the space station. The chinese space remote manipulator is an intelligent robotic system with large-scale movement, functional agility and autonomous ability, and it can be operated by astronauts in the space station or be controlled by the ground operator in the remote operation mode. Therefore, the chinese space remote manipulator has a complex control system including Center Computer Unit, Joint Electronics Unit, End Effector Electronics Unit, Thermal Control Unit and Vision Monitor and Measuring Unit, and so on. A kind of distributed control system hierarchy is designed and reliability is considering to guarantee the abilities of control system. Electronics test and experiment results demonstrate that the control system can fulfill the needs of function, real-time and reliability.