

Key Technology of Space Exploration (8)

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## RESEARCH ON THE SPACE ROBOT END-CAPTURING MECHANISM FOR NON-COOPERATIVE TARGET

### Abstract

According to the features of the space robot and its on-orbit capture for non-cooperative spacecrafts, a kind of space robot end-capturing mechanism which take the Marman ring as manipulation target is presented. The capability of large misalignment tolerance and hard locking are the two important requirements for the end-capturing mechanism. The large misalignment tolerance can offset the end-position error of the space robot, and the hard locking can avoid the locking failure between the end-capturing mechanism and the target. In this paper, the elaborate design of the proposed end-capturing mechanism scheme is completed. The results of the capture simulation and experiment show that the end-capturing mechanism has outstanding capabilities of large misalignment tolerance and hard locking, which satisfied for the requirements of on-orbit capture for the Marman ring.