

MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
Science Results from Ground Based Research (4)

Author: Mr. qingwei tong
Shanghai Institute of Satellite Engineering, China, david860126@gmail.com

RESEARCH ON THE MECHANISM OF MICRO-GRAVITY MEASUREMENT BY USING COLD
ATOM DURING ON-ORBIT PHASE

Abstract

It is mature to measure gravity by using cold atom on ground at present. However, due to the space environment is different from the ground environment, therefore the technology and design concept on the ground can not replicate to space application completely. This paper deduces the dynamic equation of cold atom during on-orbit phase, by combining the measurement principle. The deduced result demonstrates the cold atom can not be used to measure the gravity directly like on the ground. The measurement elements are mainly composed of non-gravitational accelerations vibration accelerations and attitude coupled accelerations.