

MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
Facilities and Operations of Microgravity Experiments (5)

Author: Dr. Alexander Ivanov

Central Research Institute for Machine Building (JSC TSNIIMASH), Russian Federation, iai@tsniimash.ru

Dr. Konstantin Elkin

FGUP TSNIIMASH, Russian Federation, elkin@tsniimash.ru

Dr. Valentin Mironov

FGUP TSNIIMASH, Russian Federation, mironovvi@tsniimash.ru

Dr. Lyudmila Neznamova

FGUP TSNIIMASH, Russian Federation, neznamoval@tsniimash.ru

Dr. George Karabadzhak

FGUP TSNIIMASH, Russian Federation, gfk@tsniimash.ru

SERVED BY ISS FREE-FLYING SPACECRAFT OKA-T AND ITS USAGE FOR MICROGRAVITY
EXPERIMENTS AND TECHNOLOGICAL EXPLORATION OF SPACE

Abstract

The technical possibilities of manned spacecraft for space experiments on nanotechnology and crystal growth are shown. Key differences of - Spacecraft (SC) from known similar SCs: 1. Improved microgravity conditions. 2. Possibility of overboard ultra-vacuum obtaining behind the protective shield placed in the wake of SC. 3. Possibility to be served by crew members of ISS or prospective manned transportation vehicle. 4. Possibility of basic (raw) materials delivery on SC board and return of obtained in space materials to earth. Recommendations are done regarding the constitution of scientific equipment placed in this spacecraft for obtaining of semiconductor crystals under long-term stable microgravity conditions and epitaxial structures in ultra-vacuum media behind the molecular shield.